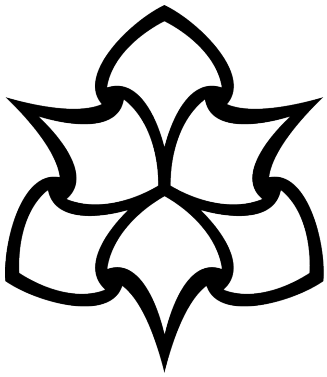

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Consumer payment choice during the crisis in Europe: a heterogeneous behaviour?[1]

By

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Abstract

In this research paper we investigate the use of payment media from consumers during a financial crisis. The scene is Europe in 2015 and the aftermath - or the very peak for some countries - of the Eurozone crisis. The contrast in the scene is augmented through researching countries at the centre of Eurozone crisis versus far more stable Economies. In the first group and in order of severity of the crisis' impact: Greece, Cyprus and to a lesser extent Spain. In the latter group Sweden and UK. We deployed a quantitative survey-based study for which the instrument was originally constructed in the medium of English and translated (and back-translated) in Greek and Spanish, and was delivered both hand-to-hand (printout) and online via Survey monkey. Descriptive statistics are presented over the totally 1003 gathered questionnaires and a comparative analysis is performed illustrating indeed an heterogeneous behaviour among the five countries under investigation. All the above comprise the empirical part of our research, that follows naturally and complements the theoretical one: a deductive model of the hierarchy of payment media - and the respective changes of - during periods of financial distress. Within that model our main hypothesis is formed around the regional differences and the impact of the crisis in the use of cash as a payment medium, both confirmed by our empirical evidence to a large extent. So during the Eurozone crisis: a) the use of cash as a payment medium is evident, and b) this is more the case in countries mostly affected from the crisis - most notably Greece.

Keywords: Financial Crisis; Banks; Europe; Households; Payment media;

JEL Classifications: **G0, G21, G28, H12, H31**

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1. Introduction

In the current study we research the use of payment media during a financial crisis. We are using the more recent and actually for many countries current example of the Eurozone crisis (Kitromilides Y. 2013). Of course Europe is not a simple beast... and consists of very different countries, and therefore very different - in nature as well as strength - economies, most notably the rich European north and the pour south with the majority of the PIIGS.

One can easily expect that during financial crises cash becomes very popular (Foster et al. 2011). However there is a lack of research on as if this is still the case across all borders of a federal organization; for that sake to the whole continent and the Eurozone? Or if the fundamental differences in the economies of the federation goes hand by hand with the fundamental differences in payment media choice from consumers as well?

We want to focus on regional differences, and in order to achieve a reasonable contrast we are researching countries at the centre of Eurozone crisis versus far more stable Economies. In the first group and in order of severity of the crisis' impact: Greece, Cyprus. Spain sitting somehow still comfortably (or not...) in the middle (Bjiork, 2015). In the last group Sweden and UK, much less affected at least macro-economically.

This is the main motivation for the study and thus the main focus: *is there an heterogeneous behaviour in Europe? as far as media payment consumer choice is concerned.*

To build further on this motivation and to get some more inspiration we were enthused to see that this issue is quite topical; as it has been recently (2014) picked up in an international comparative study by the Boston Fed research team led by John Bagnall that consists of David Bounie, Kim P. Huynh, Anneke Kosse, Tobias Schmidt, Scott Schuh, and Helmut Stix all well known for their series of studies in consumer payment choice. The study measured consumers' use of cash by harmonizing payment diary surveys from seven countries: Canada (2009), Australia (2010), Austria, France, Germany, and Netherlands (2011), and the United States (2012) resulting in highlighting coss-country differences in the level of cash use.

This was definitely an inspiration and starting point for us. It comes though with many catches: it is fully empirical, a meta-study in nature, observing countries not directly connected, surveys runs with different instrument and thus the need for harmonization and in different point in time definitely not at the peak of the 2008 Lehman brother crisis for most of them. Still many to learn and get influenced from this very thorough study.

To address some of these issues we first developed a theoretical model, and then try to validate that with a more concrete approach: one single survey instrument run simultaneously across many countries - clearly with connected economies in the Eurozone system: in essence a snapshot in 2015 across Europe!

Thus as aforementioned our research journey starts from a deductive point of view and we first develop a theoretical model of the hierarchy of payment media and the respective forces in place that move media up and down in the hierarchy, during periods of financial distress. Within that model our main hypothesis is formed around the regional differences and the impact of the crisis in the use payment media, most notably for the case of the old-time king: cash! (but not so popular these days?)

After that follows the empirical part of our research where we deploy a quantitative survey-based study comprised of a 54 questions-long questionnaire run in the aforementioned five countries. Of those questions only the first 28 are used in this study as the rest of the questions focus on more socio-economic phenomena like Social Collateral, Social Networks and the Collaborative Commons that stem the main interest for another study (Litsiou and Nikolopoulos, 2019b). Given the breadth and the geographical extent of the research the questionnaire was original constructed in the medium of English and translated (and back-translated) in Greek and Spanish and was delivered both hand-to-hand as a printout as well as online via Survey monkey. The two parts work well together and we think some insights for the reader are drawn as well further research needs are stimulated.

The remaining of the paper is as follows: section two describes the building of our theoretical model while section three is looking for studies in the literature focusing in the use of cash during periods of crisis. Section four describes our methodological approach and a series of research questions. Section five provides the demographics of the sample from which our respondents were selected while section six gives the most striking findings from our survey and the respective discussion. The paper finishes with a section containing the main conclusions and a roadmap for future research.

2. The Theoretical model: the pyramid of consumer payment media.

2.1 What Money is? (and how it emerges)

It would be very difficult to find two academics agreeing exactly what money is: a medium of exchange, a means of payment, a store and accumulation of value or wealth, just a numeraire, a unit, a simple debt, a deferred promise of reciprocal payment, a combination of all/some of the above?

We will follows Bell's (2001) definition that money is credit (as first expressed by Innes, 1913) and since every credit is created together with a debit, it should be treated as a two-sided balance sheet operation (a view consistent with Keynes 1930, Minsky 1986 and Wray 1990). Furthermore it is essential to note that it cannot be defined independently of its institutional usage, so in plain words there must be an institution prescribing when, if and how this money could be used and accepted.

Thus in order to have money created a *buyer* (debtor) and a *seller* (creditor) enter into an *agreement/contract*. We have also to clarify that we also disagree (as Bell does) with the view of Minsky's (1986) that "*everyone can create money; the problem is to get it accep*ted' as since we define it as a two-sided balance operation , money creation and money acceptance have to happen at the same time (that is when the seller and the buyer agree on the contract). And here clearly comes and the role of the institutions to facilitate the acceptance of the newly created money

2.2 What are the main views on how money emerges and develops?

Although most of these arguments first have been stated by Plato (427-347 BC) and Aristotle (384-322 BC) the main debate started in the 16th and 17th century:

- Metallists (from Greek word "metalleia" = place searching for metals – mining), that argue that "the money commodity goes by weight and quality as do other commodities (Schumpeter 1994)
- Chartalists (from Greek word "charta" = paper), that argue that money's value is independent of medium used to represent it

In both theories, government (and institutions) plays an important role as to define the exact value of money through either a stamp on the metal coin (metalists) or by defining where the pay-token used for money will be accepted (chartalists). In the latter as Knapp (1924) clearly elaborates the state plays a central role in the development and establishment of money as basically it forces for the taxes to be paid via this medium – so

money is perceived as a "creature of the state" (consistent with the views of Smith, Keynes, Knapp and Minsky)

According to the analysis of Bell (2001) that we agree and want to follow in this research, the Chartalist theory complies fully with the perception of money as a two-party debt relation (while the metallist not necessarily does so). Following these arguments, our theoretical model and research in this paper research falls into and will contribute to the broader Chartalist theory.

2.3 Money leading to payment media/instruments

Money is credit, is a two-sided balance sheet phenomenon, a two-party debt relation and this debt has to be paid in a certain pre-agreed currency: but that payment does not have to be made in one payment instrument only. So for the amount in debt various payments could be made via cash, debit cards, credit cards, cheques etc as long as all these have a common denominator: the same currency that was pre-agreed (and of course the partial payments sum to the total debt)

2.4 What is the pyramid of money?

Some monies are more acceptable than other. However all do have a common denominator and that is the money of account as referred by Keynes as the unit in which all money in the hierarchy is denominated: in USA is $ and in Europe is mostly Euros. It has to be noted that:

- All money in the hierarchy/pyramid is currency-denominated chartal money
- Because the government's currency is the only legal way of discharging tax liabilities, this currency has to be the money of account

In the simplest form of the hierarchy/pyramid the most acceptable money is the one issued by Government/state followed by the ones used and accepted and issued by financial institutions, , followed by the ones from firms and finally the ones from households that are the least accepted. All these are illustrated in figure 1:

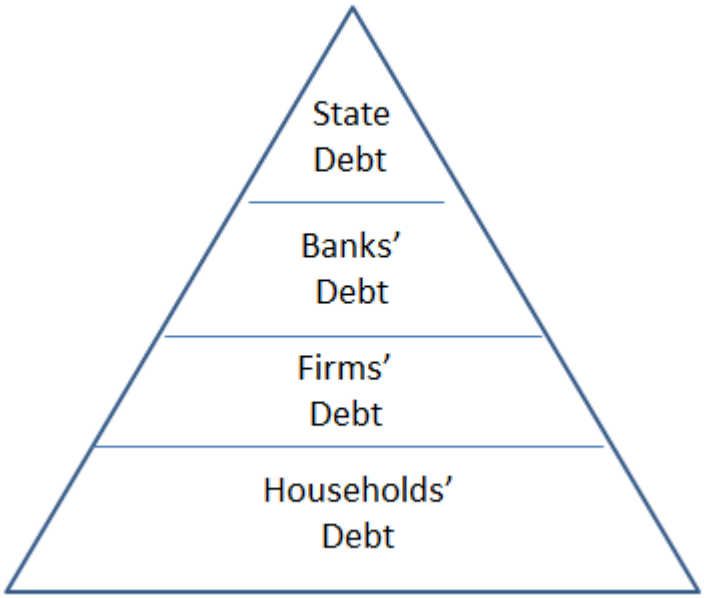


Figure 1. Pyramid of Money.

And since each of these debts can be satisfied via payment through various payment media we have a similar hierarchy structure for these. All are expressed in the same currency (the state's preferred one) and even foreign currencies are done so via exchange rates. All these are illustrated in figure 2:

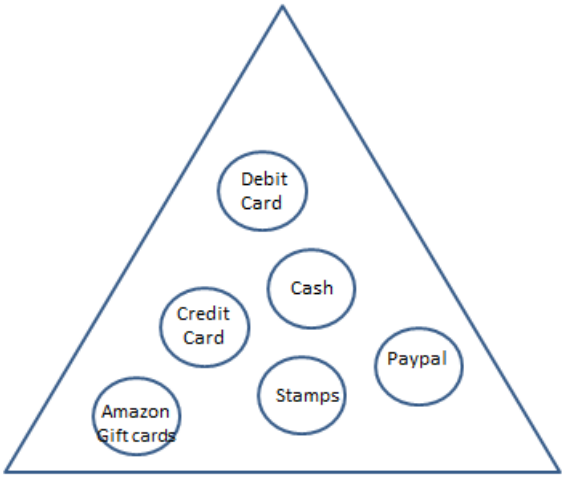


Figure 2. Pyramid of Payment Media/Instruments.

2.5 Theoretical Model extended to allow for Complementarity and Substitute Payment media

Following Kuroda's (2008) arguments we can claim that the history of money has been full of plurality until recent times, and that It is no exaggeration to say that the majority of human beings through most of history dealt with concurrent currencies. It is important to recognise that, in most if not in all cases, the coexistence of monies was not incidental but functional, since they worked in a complementary relationship. That is, one money could do what another money could not, and vice versa. In other words, an assortment of monies could do what any single money could not, and supply what the market required.

In a similar fashion we can extend these argument to the use of payment instruments and argue for *complementarity* in between payment media/instruments i.e in the example as illustrated in figure 3 in between cash and credit cards where many argue that the former is used for smaller-value transactions while the latter for larger-value transactions (Klee 2008) thus they do have a complementary nature.

Furthermore following Scholnick et al. 2006 arguments as backed from empirical evidence through a survey examining the pricing of credit cards, the impact of networks on the provision and pricing of ATMs, as well as the tradeoffs that consumers make between different types of payment mechanism, including debit cards, credit cards and ATMs, we can claim for another characteristic of payment instruments. Importantly, this paper is also amongst the first to provide new evidence on this latter question from bank level data (from Spain). We conclude that point of sale (debit card) and ATM transactions are substitutes, and that ATM surcharges impacts point of sale volume significantly. So we can claim that in between payment media there is the concept of *substitution* e.g. in between cash and debit cards as illustrated in figure 3.

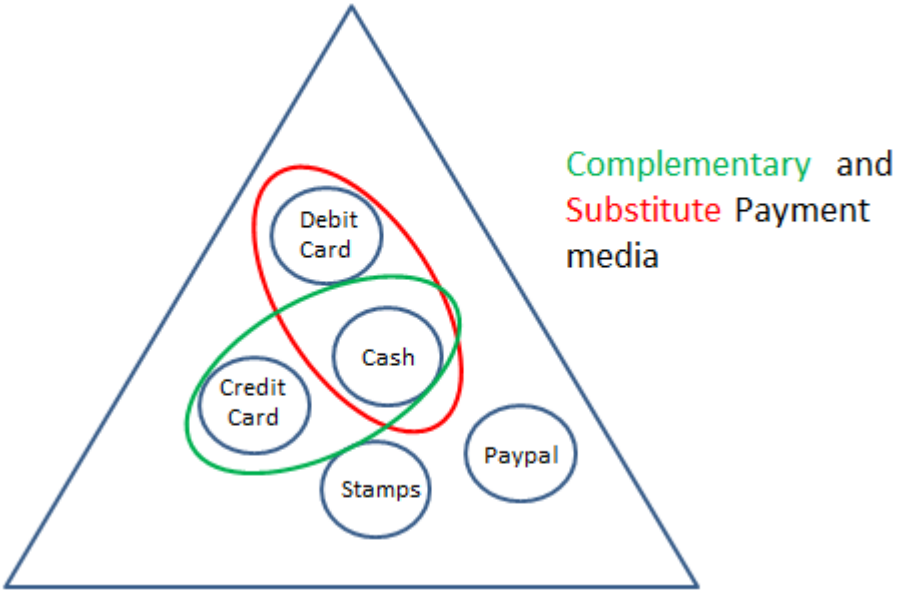


Figure 3. Pyramid of Payment Media/Instruments allowing for Complementary and Substitute payment media

2.6 Theoretical Model extended to allow for regulating two-sided markets

Following the empirical investigation from Carbo-Valverde et al. 2009 studying the effect of government encouraged or mandated interchange fee ceilings on consumer and merchant adoption and usage of payment cards in an economy where card acceptance is far from complete, we do adopt the concept of government *regulation* for payment media. In the aforementioned paper the authors find that consumer and merchant welfare improved because of increased consumer and merchant adoption leading to greater usage of payment cards.

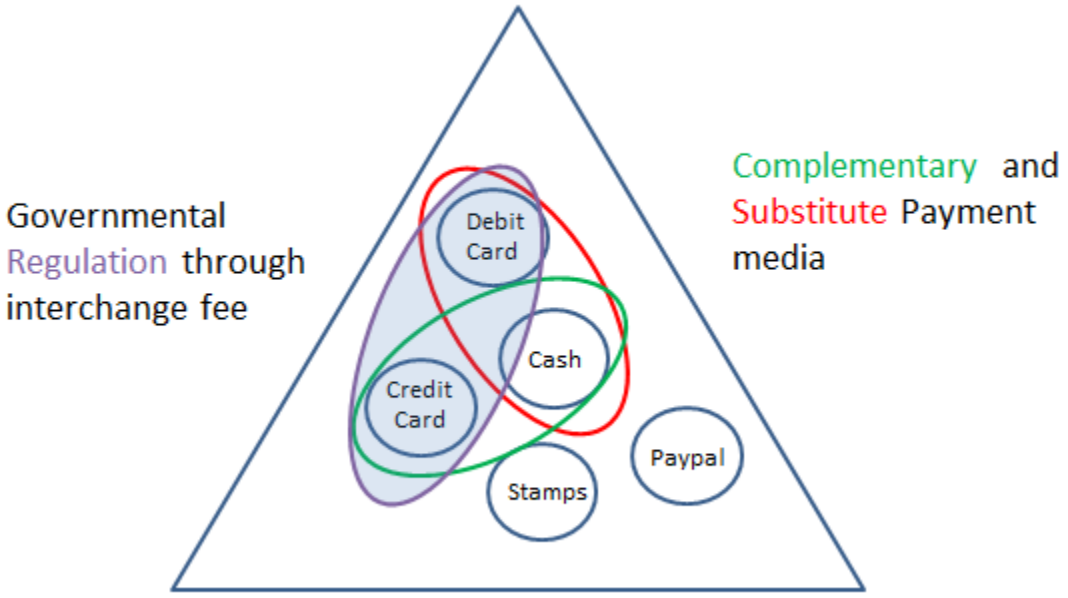


Figure 4. Pyramid of Payment Media/Instruments allowing for Complementary and Substitute payment media and Governmental Regulation

2.7 How is the pyramid changing during a financial crisis?

This is the final version of our theoretical model. The model allows longitudinal changes in the preference of payment media by consumers by pushing various media up and down in the pyramid during the passage of time, as well as of course many other factors as illustrated in figure 5.

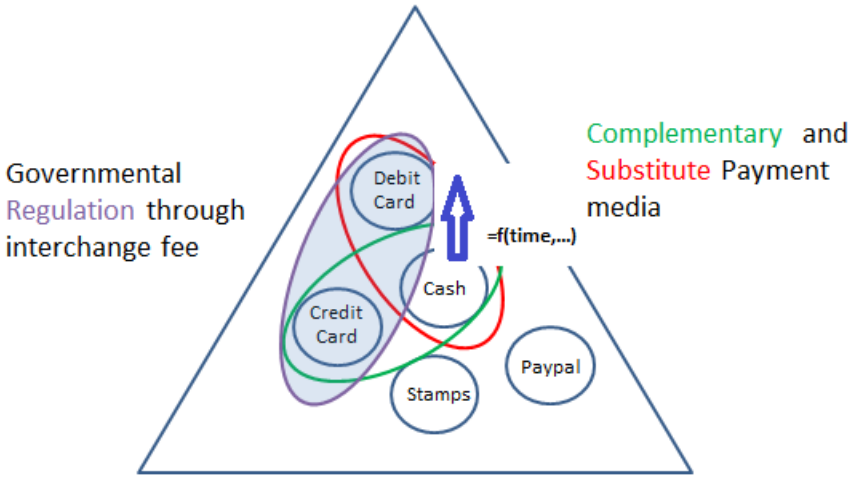


Figure 5. Pyramid of Payment Media Theoretical model allowing for temporal changes

An interesting question is what really is happening during periods of financial and economic crises and to that end we rely on the relevant literature as discussed in the next section to get some insight on the forces that push up and down the various media during such periods

3. Background Literature: use of cash in general and during crises in specific.

3.1. Use of Payment media

There is only a handful of studies that provide empirical evidence on the use of payments instruments. Klee (2008) in a seminal paper in the Journal of Monetary Economics estimates the transaction costs for different payment instrument in grocery stores, and explores the key factors that influence payment choice, such as opportunity cost and demographics using data in the USA in 2001. In her sample U.S. consumers have four choices of how to pay everyday purchases: cash, check, credit card, and debit card; with checks to represent the highest share of the number and value of these payments. In the study the value of the sale is a key component of developed theoretical models of payment choice, and is one of the major factors of the analysis.

Transaction costs are also very important and are divided into three components: handling costs, inventory costs, and authorization and verification costs. The results show that consumer choices are based on opportunity costs and interest elasticities, but also crucially on transaction and other handling costs. Another interesting finding is about the median household income: higher income is associated with lower values of sale or cash transactions, not a significant factor in the value of sale of check transactions and higher values of sale for credit and debit card transactions. The main findings are presented on the graph on the left of figure 6.

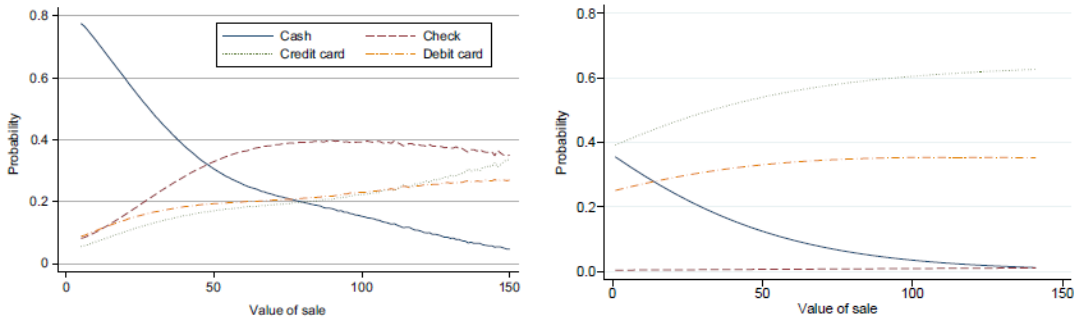


Figure 6. Payment instrument choice at grocery stores in 2001 (on the left from Klee (2008)) and 2012 (on the right from Briglevics and Schuh (2013)) [Figure adopted from Briglevics and Schuh 2013, p. 3]

The graph on the right of figure 6 contrasts the results from Klee (2008) and comes from a very recent study from Briglevics and Schuh (2013) with data from the 2012 Diary of Consumer Payment Choice (DCPC) yet again in the States. As it is evident from the comparisons of the two graphs in figure 5 there are substantial changes versus the study by Klee (2008). Checks have practically disappeared from transactions, while still play some role in bill payments. Cash, on the other hand, still plays a large role for low-value transactions but much less – almost half, than what was reported by Klee. The data also allows to analyse the sequences of payment transactions and respective payment instrument choices and furthermore also how they relate to cash withdrawals with the results indicating that such forward-looking behaviour of consumers might be important.

In particular the probability of using cash from 40% goes down to lower than 30% even if there are just two daily transactions (versus just one); with the dropping rate being monotonous and probability if a third daily transaction does exist to fall into half of what it would else be. In respect of the withdrawal costs, the calculations in the paper show that these are not recouped until the 7th transaction for credit and debit card holders.

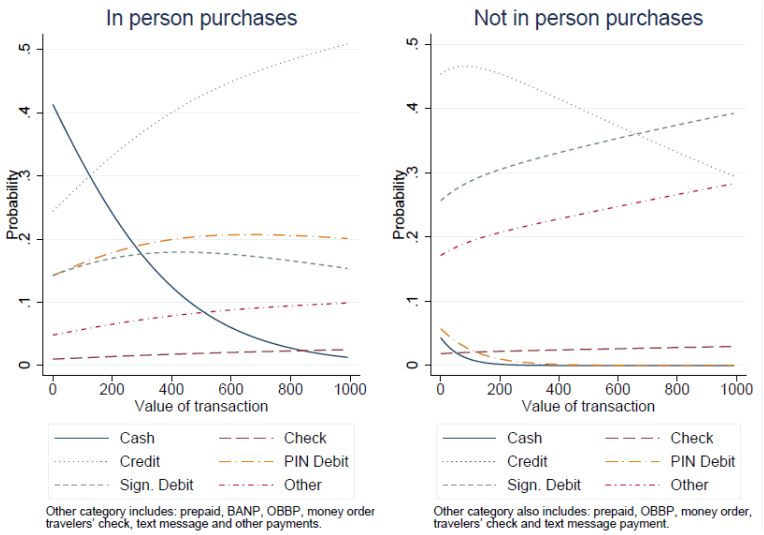
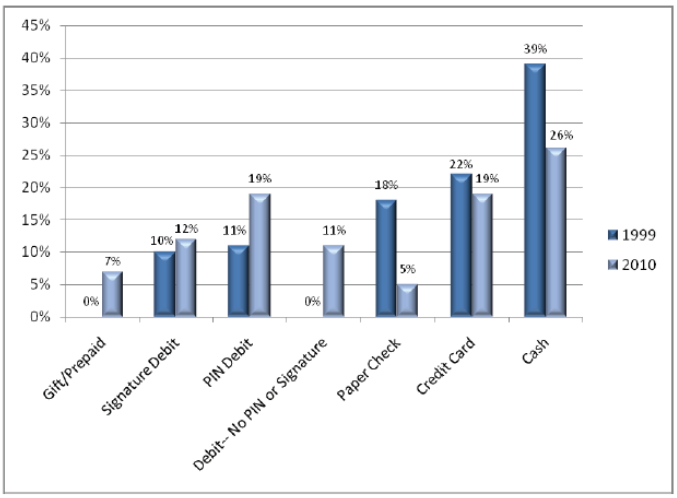


Figure 7. Payment instrument choice at the Point Of Sale (POS) on the left versus not in – person on the right [Figure adopted from Briglevics and Schuh 2013, p. 4]

Another final interesting result come from the comparison of in person versus not in person transactions (figure 7) where the cash almost disappears in the latter while the trend in the use of credit cards is negative.

A third study from First Data (2010) reports data from 1999 and 2010, data that were collected from Hitachi Consulting (www.hitachiconsulting.com) and BAI (www.bai.org). There is a clear evidence in figure 8 for the decline in the use of cash (down to 26% from 39%) and checks (from 18% down to 5%) in the expense of the rise of debit card transactions - that being true for both PIN debit cards as well as Signature ones, a total of 42% in 2010 versus of just 21% in 1999. Credit card use has shown a small decrease in the respective period from 22% to 19% per month



Source: Hitachi Consulting and BAI. "2010 Study of Consumer Payment Preferences," September 2010.

Figure 8. Use of Payment instrument in 1999 and 2010 [Figure adopted from First Data White Paper October 2010, p. 3]

All these presented results so far are cross sectional results in the sense that report the findings only in two specific periods in time, in essence two snapshots in 2001 and 2012. What about the evolution of the series from one point in time to the other? What about other periods in time and what about other places in the world? Two main studies are shedding light towards that direction.

The first one is a longitudinal study from Hough et al (2009) that also uses data from Hitachi Consulting and BAI provides panel data ranging through the years 1999 to 2008. Consumers are using debit cards more - especially PIN debit, instead of cash and checks, and the interesting finding is that this stands even for small-value purchases. On the other hand there is a constant increase in the use of electronic bill pay for recurring payments.

Although it is not surprising that electronic payment (credit, debit and automated clearing house (ACH) transactions has outpaced paper (cash and checks), this increase by itself puts greater pressure on banks to find ways to reward and retain customers for their electronic payments. Bankers also need to find balance in managing cash and checks, as those become a smaller part of the payments mix.

This gradual change is documented in the 2008 Study of Consumer Payment Preferences, conducted by BAI and Hitachi Consulting. The 2008 results build on previous results of the same study conducted in 1999, 2001, 2003 and 2005 and these are graphically illustrated in figure 9 where a tendency towards cashlessness and in favour of electronic mediums of payment becomes evident. From 57% in 1999 uses of papers medium goes down to 51%, 46%, 44% and finally just 37% in 2008; that is an absolute 20% decrease in less than a decade and a relative reduction by a third…

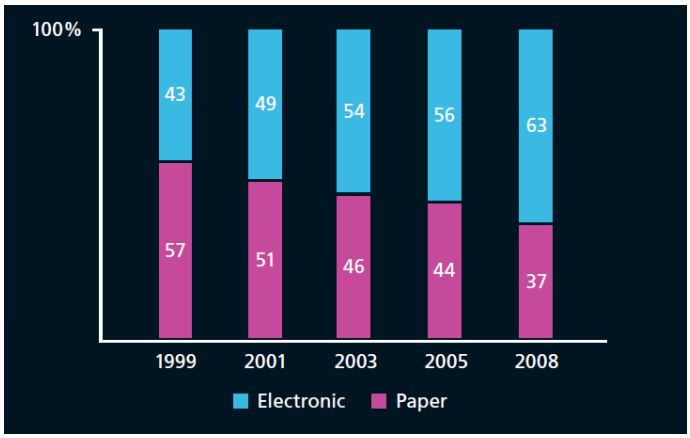
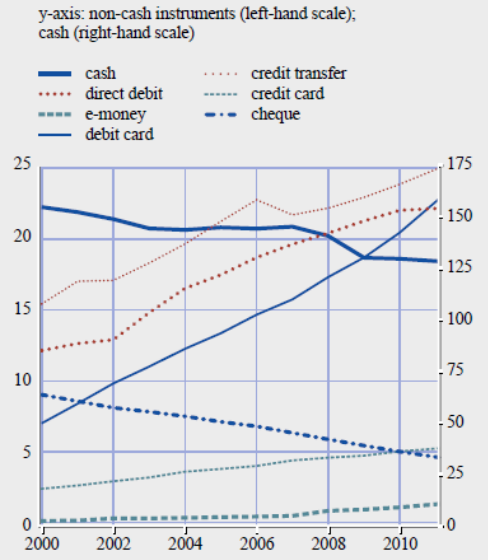


Figure 10. Electronic versus Paper payment instruments use [adopted from Hough et al. 2009, BAI p.17; Original Source BAI and Hitachi consulting]

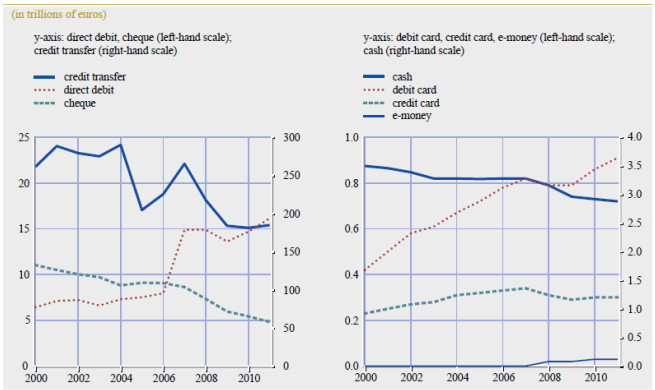
The second and most detailed one is a longitudinal study from the European Central Bank across the 27 EU countries for the period 2000 – 2011 as reported from Martikainen et al. (2013). Yet again paper media in the likes of cash and checks are constantly decreasing in the expense of new media like debit cards, direct debits and credit transfer as it is evidenced in figure 9 for total transactions:



Source: ECB Statistical Data Warehouse.
Note: The yearly evolution of the total number of transactions made by different payment instruments in the 27 EU countries for 2000-2011.

Figure 10. Total **Number** of **Transactions** for the 27 EU countries 2000-2011 [Adopted from p.12 in Martikainen et al. 2013 (Original Data Source: ECB Statistical Data Warehouse)]

and figure 11 for the total real value of the respective transactions.



Source: ECB Statistical Data Warehouse.
Note: The yearly evolution of the total real value of transactions made by different payment instruments in the 27 EU countries for 2000-2011.

Figure 11. Total **Real Value** of **Transactions** for the 27 EU countries 2000-2011 [Adopted from p.13 in Martikainen et al. 2013 (Original Data Source: ECB Statistical Data Warehouse)]

3.2 What about the crises periods?

The most convincing empirical evidence of what is happening during periods of crises comes as a result of a qualitative survey in U.S. from the Federal Reserve Bank of Boston in 2011 from Foster et al., reporting the use of payment instruments in U.S. during 2008 and 2009. The study presents results of the 2009 Survey of Consumer Payment Choice (SCPC), along with revised 2008 SCPC data, thus a period that includes the latest recession, when as reported consumers significantly increased their use of cash and close substitutes for cash, such as money orders and prepaid cards – and this is a major finding; as it contradicts the long-term tendency towards a cashless society (Batiz-Lazo et al. 2013), even for a short period of time. In detail the main findings for 2009 are:

- Consumers held 5 payment instruments and used 3.8 of them during any given month. Numbers for 2008 were higher with values of 5.1 and 4.2 respectively
- Less consumers held debit/credit cards than in 2008: 77.0% had a debit card (down from 80.2%) and 72.2% had a credit card (down from 78.3%)
- Electronic payment instruments were also quite popular as 48.8%t had set up online banking bill payment and 56.3% had used bank account number payments; with these numbers being however lower than in 2008. The noncash payment instrument held by the most consumers was checks - 85.4 %

• The average U.S. consumer made 64.5 payments in a typical month with 19.0 payments per month for debit cards, 18.4 for cash, 11.2 for credit cards and 8.2 for checks with most of the remaining payments made by electronic means and a very small number by other means

• The time between the 2008 and 2009 surveys includes a severe recession. Total consumer payments declined by 4.2% per month and consumers made more payments by cash and close cash substitutes with cash payments being increased by 26.9% percent (from 14.5% to 18.4%)

• Cash holdings and total monthly withdrawals also increased similarly (26.5 percent and 29.2% respectively). At the same time consumers reduced their credit card payments by 21.9% (from 14.4% down to 11.12%), bank account number payments by 26.1%, check payments by 14.0% and even debit card payments by 10.0%

• Several factors likely played a role in the shift of consumer payments back toward: weaker economic conditions encouraged a shift away from credit card payments, for both supply and demand reasons, and perhaps toward cash because it helps some consumers cut costs and improve budgeting. Changes in government regulations toward credit and debit cards and bank pricing of payment card services during 2008–2009 may have also contributed as well. On top of these, consumers' assessments of the security of electronic payments worsened too.

- Consumers tend to rate cash higher in almost every payment characteristic including acceptance, convenience, cost, and security

- One in three consumers had at least one of the many forms of prepaid card, and nearly as many had a nonbank payment account (PayPal,Google Checkout etc). Mobile payments also had an initial boost as 3.0% percent of consumers had made one such transaction in the last calendar year

Non - U.S. empirical evidence is reported from British Retail Consortium in 2011 can be attributed to the effect of the latest economic crisis post 2008 and in specific during the double-dip recession episode of 2011 in U.K. and the respective influence and impact in individuals payment behaviour in U.K. The main result from that study is that during the period 2010 to 2011 as a percentage of transactions handled by retailers there have been changes in payment methods used by consumers in favour of cash transactions (up 5.7%) and against card transactions (down 10.53%)

And in order to further support that argument at a macro level according to the ECB monthly bulletin in April 2011 the additional demand for euro banknotes during the financial crisis represented a £5 Billion Euro just during September and October 2008. So concluding there is some (limited though) broad evidence U.S. that during economic crises the long-term cashlessness trend is reverted and the use of cash is temporarily increased…

Finally Bagnall et al. (2014) in the first comparative study measure consumers' use of cash by synthesizing and harmonizing payment diary surveys from seven countries: Canada (2009), Australia (2010), Austria (2011), France (2011), Germany (2011), the Netherlands (2011), and the United States (2012). The paper finds cross-country especially in the level of cash uses across countries and particularly for low-value transactions.

4. Research hypotheses and selected Methodology

4.1. The Hypotheses

Following the literature as reported and synthesized in the previous section our main hypothesis is built around the use of cash, and the respective increase or consistent appearance during periods of economic crises.

H1: *The use of Cash is evident (or even increasing) during periods of crisis*

Furthermore given the demographic, cultural and technological differences among countries, respective differences in the use of cash are expected to be apparent, so:

H2: *The use of Cash will vary across different regions/countries*

We conceptualize those two aforementioned hypotheses in our model in figure 12.

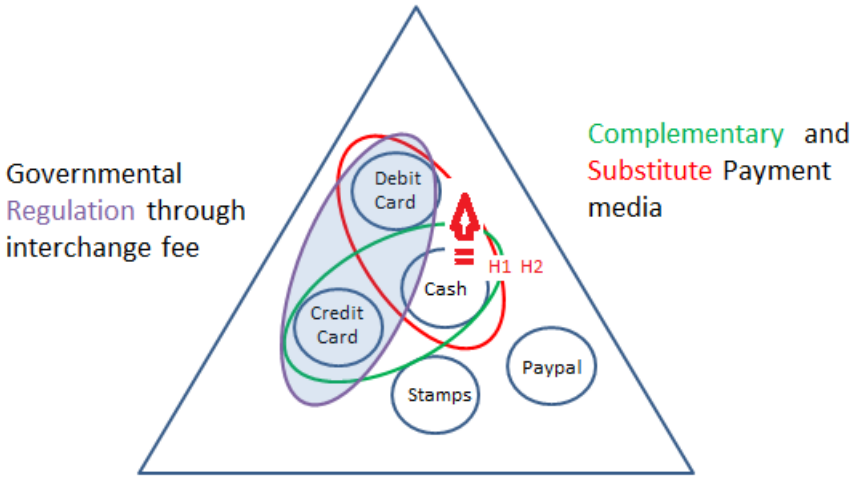


Figure 12. Formal Hypotheses for this study

4.2. Methodology

Given the lack of publicly available detailed data in EU on what makes people use one payment instrument or another - rather than high level aggregate quantitative data through the European Central Bank and OECD, we think there was scope for an inductive and empirical methodological approach in order to validate the proposed deductive model.

Through this data-driven approach insights will be sought from rich data along the same lines of the:

A. data collected through surveys from the Federal Reserve Bank of Boston and the research team in the Consumer Payments Research Centre (http://www.bostonfed.org/economic/cprc/), mostly driven by the work of Foster and his team in the last 15 years with their Surveys of Consumer Payment Choice - SCPC (for the latest publications from data in 2010 and 2009 and 2008 see Foster et al. 2011, 2013, 2010). This is an extremely important stream of research as it captures the period before, in and after the latest economic crisis in USA
B. data collected through surveys from the Reserve Bank of Australia with their Consumer Payments Use Study (http://www.rba.gov.au/publications/). The Bank first undertook a study of consumers' payment patterns in 2007 as part of its 2007/08 Review of the Payments System Reforms (Emery et. al. 2008), and repeated the study in late 2010 as part of its Strategic Review of Innovation in the Payments System (Bagnall et al. 2010). Both the 2007 and 2010 studies used a similar methodology, based on the Roy Morgan Research Financial Transaction Diary®. For the 2010 study, individuals were asked to record in the diary details of every purchase, bill payment and cash withdrawal made over a one-week period, including information on the type of payment (e.g. cash, credit card etc), the channel (e.g. in person or internet) and the type of merchant to which the payment was made. The 2010 study also contained a questionnaire, which was completed at the end of the diary period and designed to provide further insight into consumers' payment behaviour and their

preferences regarding different types of payments. A third study followed in 2013 as reported by Ossolinski et al. (2014).

C. data collected through surveys in other countries as reported from the latest comparative study in between 7 countries (Canada Australia Austria, France, Germany, Netherlands, USA) of the Federal Reserve Bank of Boston (Bagnall et al. 2014)

So in all these studies a survey-based approach was followed and thus we decided to follow the same route. The questionnaire we used is presented in Appendix B and is based to a large extent to the ones used in the Boston Fed and to a less extent to the ones in Australia that follow a Diary format (see Appendix A for all these instruments)

4.3. Questionnaire Design

We are interested in focusing what is happening during periods of economic crisis and figuring out what are the mechanisms and why consumers chose to pay for their goods and services with a specific payment instrument instead of using others. In order to get the data needed in our research, we included questions about the consumers' views and their personal experiences as well. In more detail:

Our consumer payment survey is split in two general parts:

- The first one is about general ideas about ownership and usage of different kind of payment instruments.

- The second part is based on more sociological elements ideas of:
    1. Social Collateral,
    2. Social Media and
    3. Collaborative commons.

  This latter is analysed in a separate research given the totally different theoretical standing it derives from (for more details see Litsiou and Nikolopoulos, 2019b)

The questionnaire contains 54 questions as follows:

- The first two questions are about ticking that respondents agree to take part in the survey and choosing in which country they live.
- Demographics: 3-7
- Mobile Phone use: 8-10
- Payment Media used: 11-26, 30
- Financial Distress: 27-39
- Social Collateral: 31-37
- Social Media: 38-50
- Collaborative Commons: 51-54

We asked some retrospective questions for the three latter parts of the questionnaire in order to gain perspective on changes in attitudes and behaviour over time. Three different periods of time selected; what happens in the last 12 months, what has happened the last 7 years (after 2008 and the start of the economic crisis) and, what happened before 2008 and the start of the economic crisis.

The questionnaire was piloted early of November 2014 in a convenience sample in England; 20 questionnaires were given out (half online half as printouts) and 15 persons replied. Most respondents reported that they completed the survey in between 15 to 20 minutes and reported it was a bit lengthy. Some questions had to be modified to add clarity.

4.4. Survey Implementation

The first version of the survey was conducted in Greece in the first week of February 2015 for three months. It was distributed voluntarily from a network of contacts and respondents were promised complete confidentiality.

The primary form of the survey was distributed through a web link to main contacts; a university version for staff, a version for students, a version for people who work in the health sector and a version for other professionals. In each of these sectors more than one contact distributed the survey. Two persons from different universities send out the survey to their colleagues; one university is based in Athens and the other one in a smaller city. Three PhD students forwarded the link with the survey to the main student list in the department of the university they study (in same universities as previously). In health sector, the survey sent it out in a hospital from a nurse who works there to her colleagues, aiming to reach as many possible respondents as possible. Each contact was responsible for promoting the survey and encouraging participation among respondents. Interestingly three more workers in three different hospitals distributed a hundred of paper questionnaires in total between other workers; after a week the completed questionnaire handed back to us were already 98!

Although participation in the survey was voluntary, respondents were encouraged from our main contacts to take part in the survey and they focused on the importance of the effort needed to gain as much data from Greece as possible and to have a good sample given Greece was and still is in the midst of the crisis.

We contacted the Greek Consumer Association in order to add survey's link on their Facebook page and after explaining them the purpose of the research they agreed to post the link on the first week of March 2015. We got about 70 responses back in a period of three weeks time.

In order to get more responses through media pages we added the link on the Main Greek Nurse's page on Facebook and we got about 100 more responses back in three weeks time.

The last group we contacted through media pages in the same period of time was Greek teachers. The survey's link was added in their group's Facebook page and more than 30 respondents answered the questionnaire. A total of 692 responses collected in Greece, 168 in paper (90 percent response rate) in the periods 11 - 13 January 2015, 6 - 13 February 2015 and 18 - 22 April 2015; the rest were collected electronically with the response rate being unfortunately unknown.

Then the questionnaire was disseminated through a series of fieldtrips to Cyprus (14 - 17 January 2015), Spain (8 - 11 March 2015) and Sweden (15 - 18 March 2015) with a total of 1003 questionnaires collected coming from five key group of respondents: academics, health sector workers and professionals, professionals, students and friends and family. The breakdown is illustrated in Table 1 and figure 13 as follows:

Count		Sector					Total
		Academics	Health sector	Professionals	Students	Friends & Family	
Country	Greece	11	219	277	75	110	692
	Cyprus	6	28	59	0	5	98
	Spain	43	5	44	33	0	125
	Sweden	27	11	42	8	0	88
Total		87	263	422	116	115	1003

Table 1. Questionnaire responses in 4 countries and 5 groups.

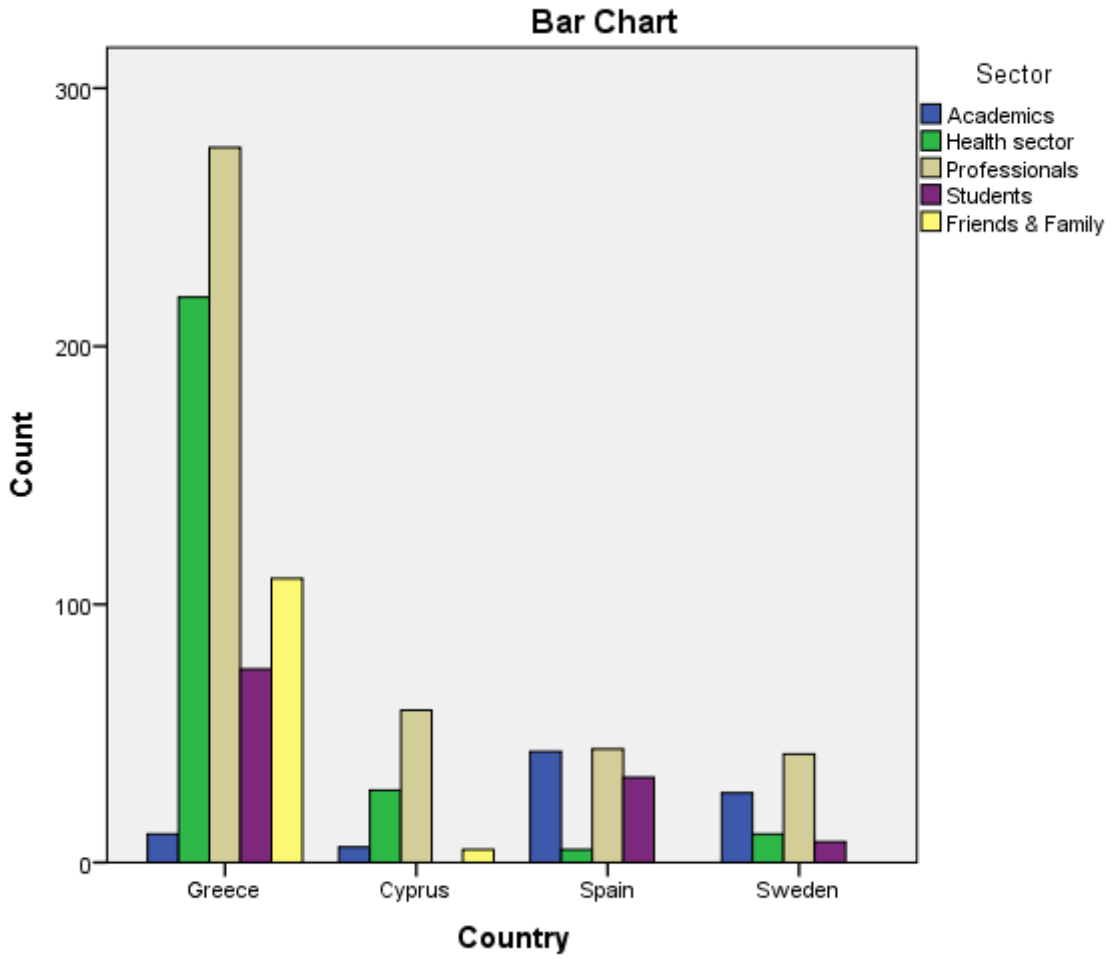


Figure 13. Questionnaire responses in 4 countries and 5 groups.

The last part of the survey in UK has not concluded yet (October 2015) and as such the 60+ questionnaires collected so far have not been included in our analysis.

4.5. Survey Question Types

With over 50 questions in the questionnaire we needed to keep it easy filling for respondents so it won't turn them off. Most of survey questions are multiple-choice questions; in a straightforward way we ask respondents to choose the most appropriate answer out of a list of options. We provided a number of answers, so respondents choose the ones are aligned to their views. We wanted to understand not only what their views are about specific payment instruments, but also, why they choose to pay with a specific payment way over the others. For that reason we included lots of rating scale questions, so respondents rate in a scale 1-6; for example we ask them to rate the importance of each payment characteristics when they decide which payment method to use. The scale is from 'Not important at all' to 'Very important' with an option of 'No opinion'.

Additional we include a few open-ended questions where respondents are allowed to fill in the answer. For example we ask respondents who replied in a previous question that they don't have a current account, to fill in the reason why they don't. Open-ended questions are in principle time-consuming and for a long questionnaire to complete (as ours) it is not a good idea to have lots of that kind of questions.

5. Sample Demographics and other interesting features of our sample

Overall our methodological approach is qualitative employing convenience sampling followed up by snowball sampling and was applied from February 2015 to October 2015 resulting in 1003 questionnaires analysed to date.

We first present the demographics of our sample:

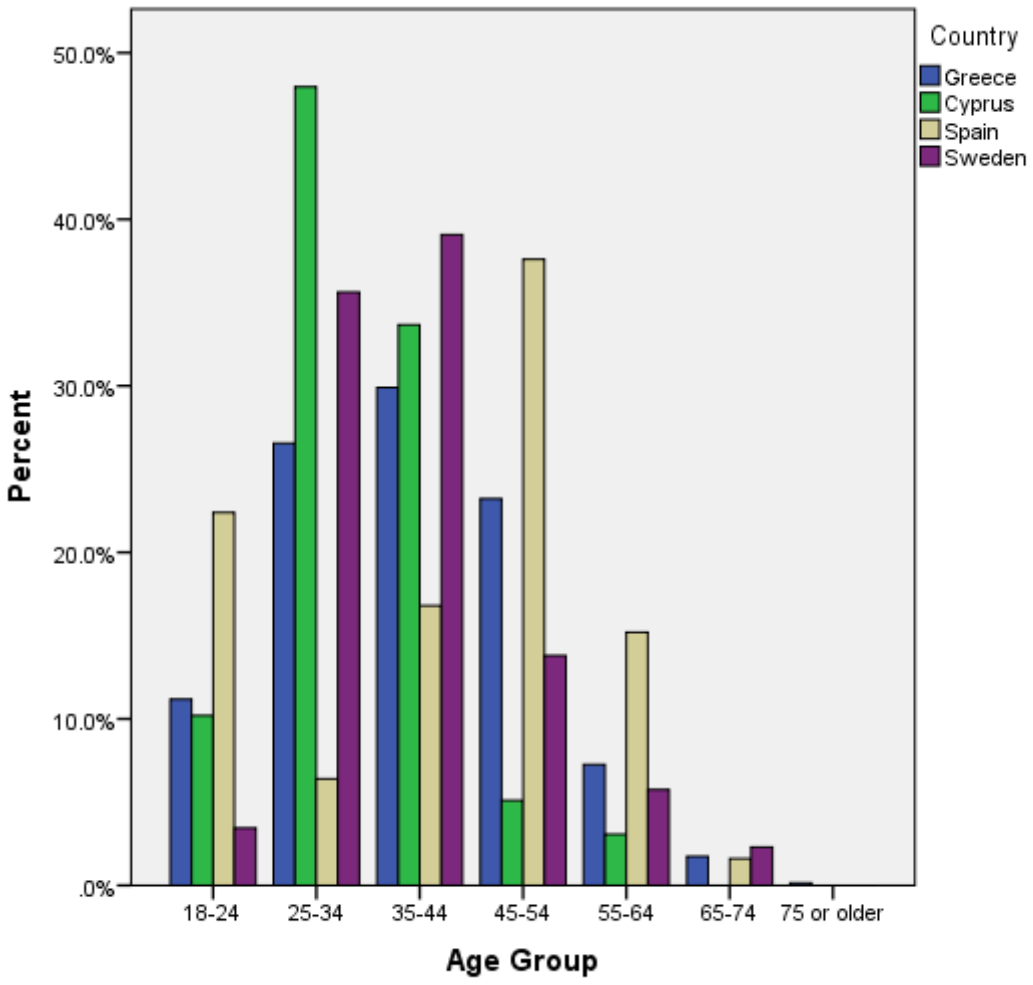


Figure 14. Age groups.

We notice older ages being recorded in Spain, then Sweden.

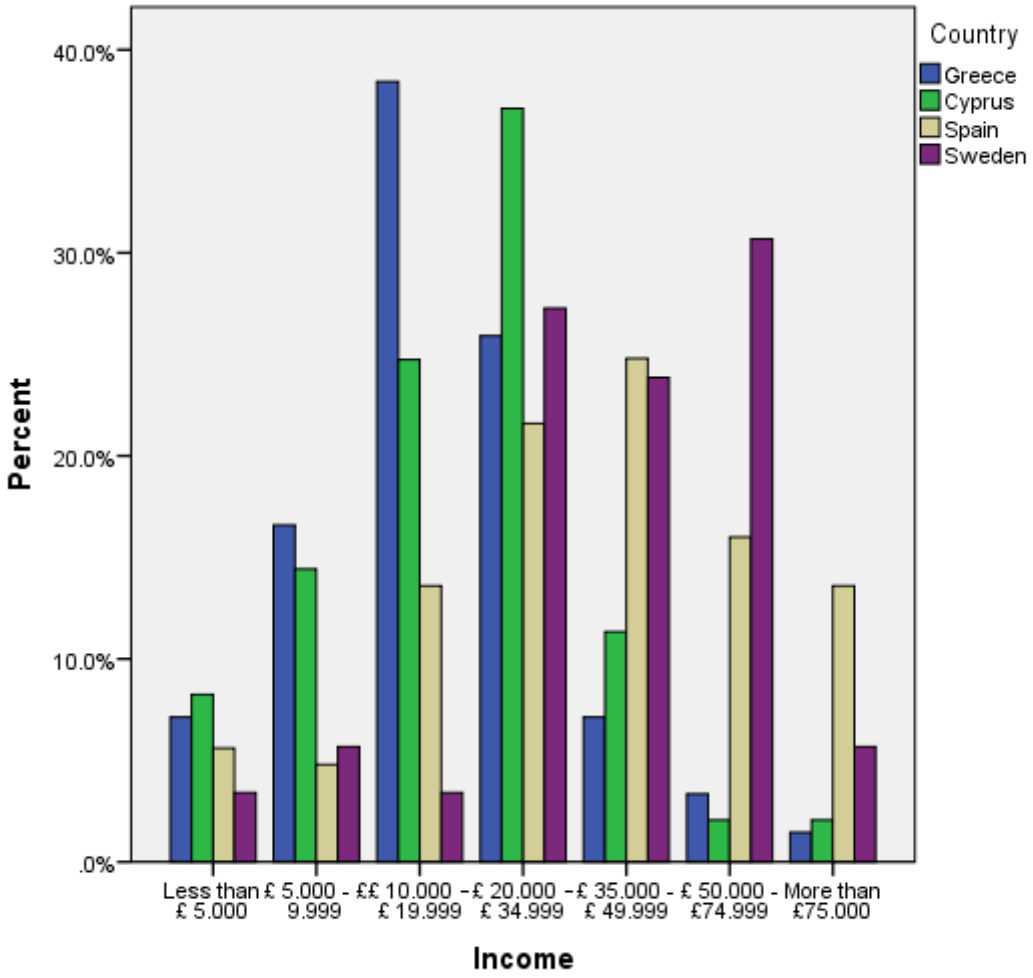


Figure 15. Income groups.

We notice a much higher income in Spain and Sweden.

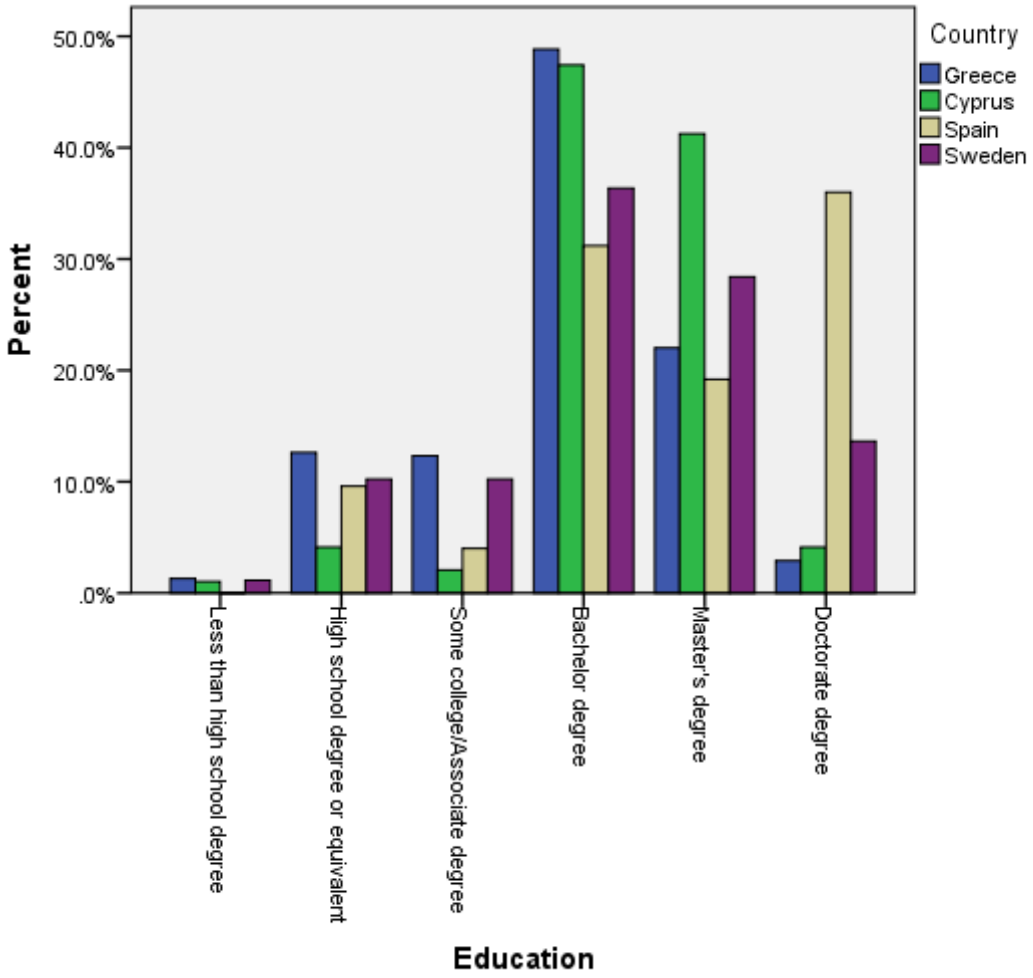


Figure 16. Education groups.

We notice similar levels of education.

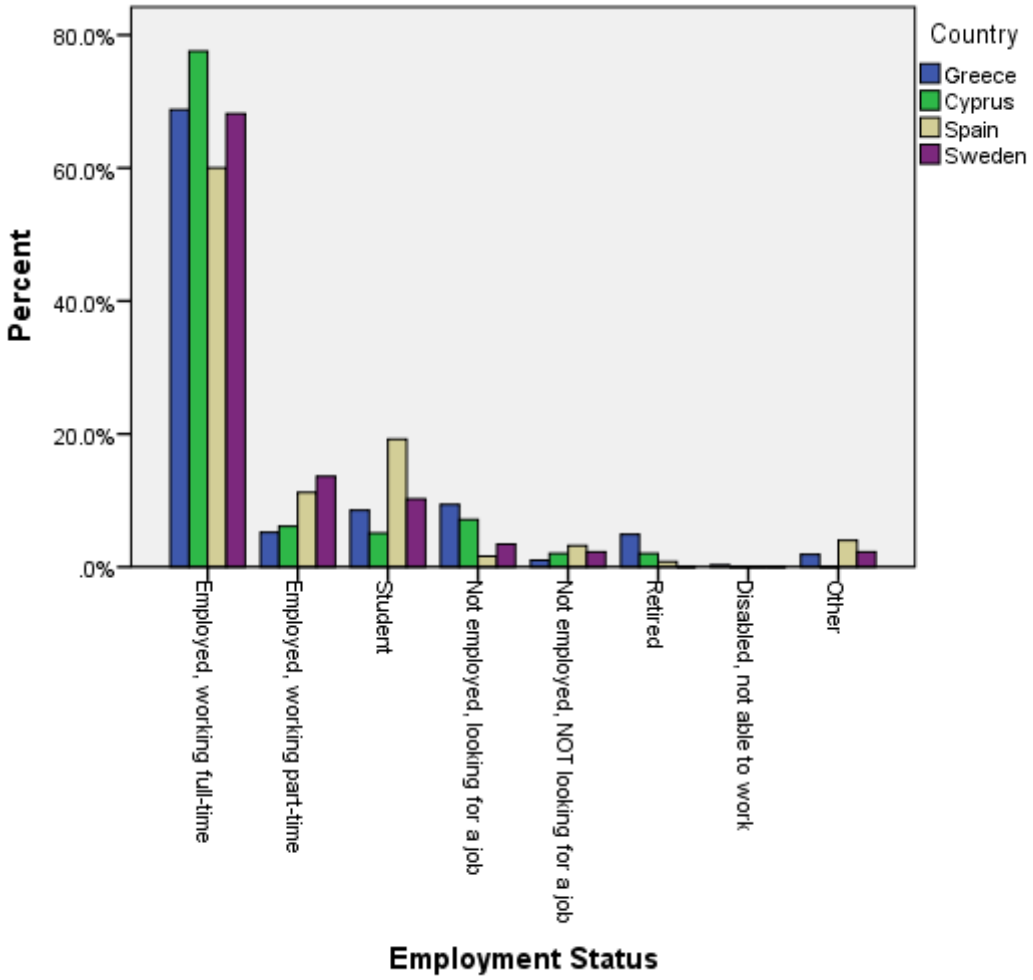


Figure 17. Employment groups.

We notice similar employment profiles.

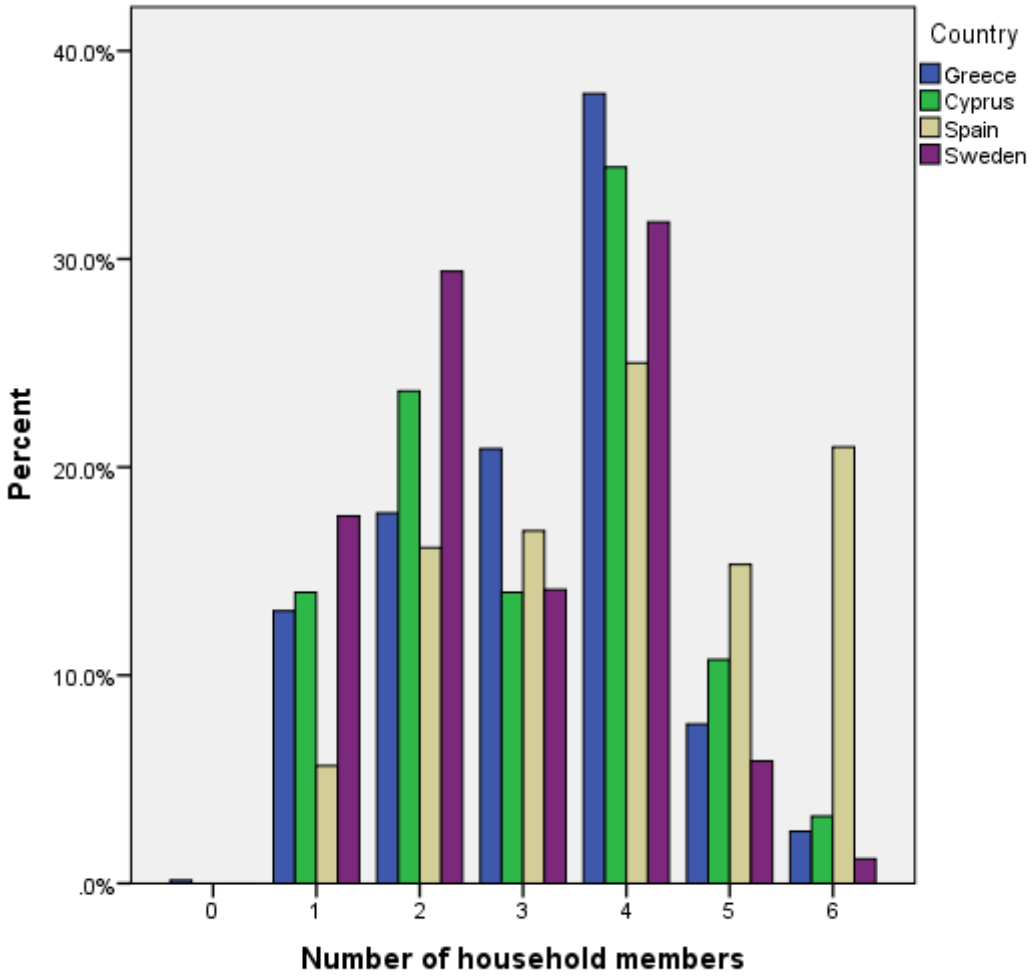


Figure 18. Household size groups.

We notice similar family sizes.

5.1. Responsibilities of the respondent

In the following figures we record the responsibilities taken within the family from the individual that actually completed the survey. This is recorded in figures 19-22 where we notice more or less similar responsibilities apart from when it comes to shopping and management for the household where more differences are observed and we have a less homogeneous sample.

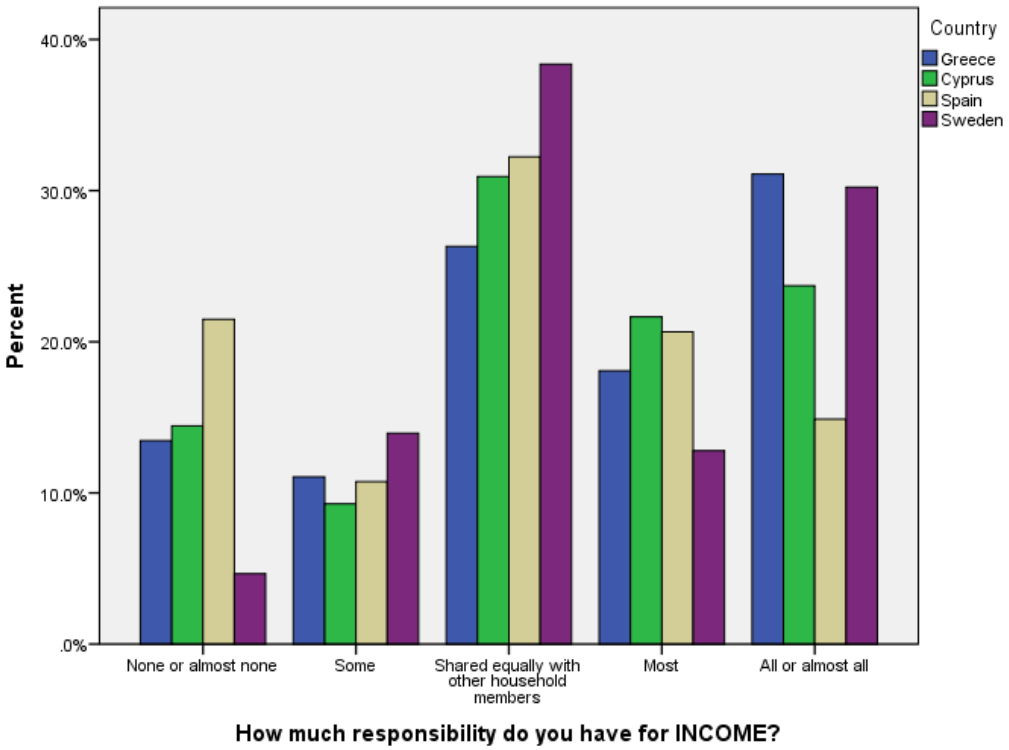


Figure 19. Responsibility for Income generation.

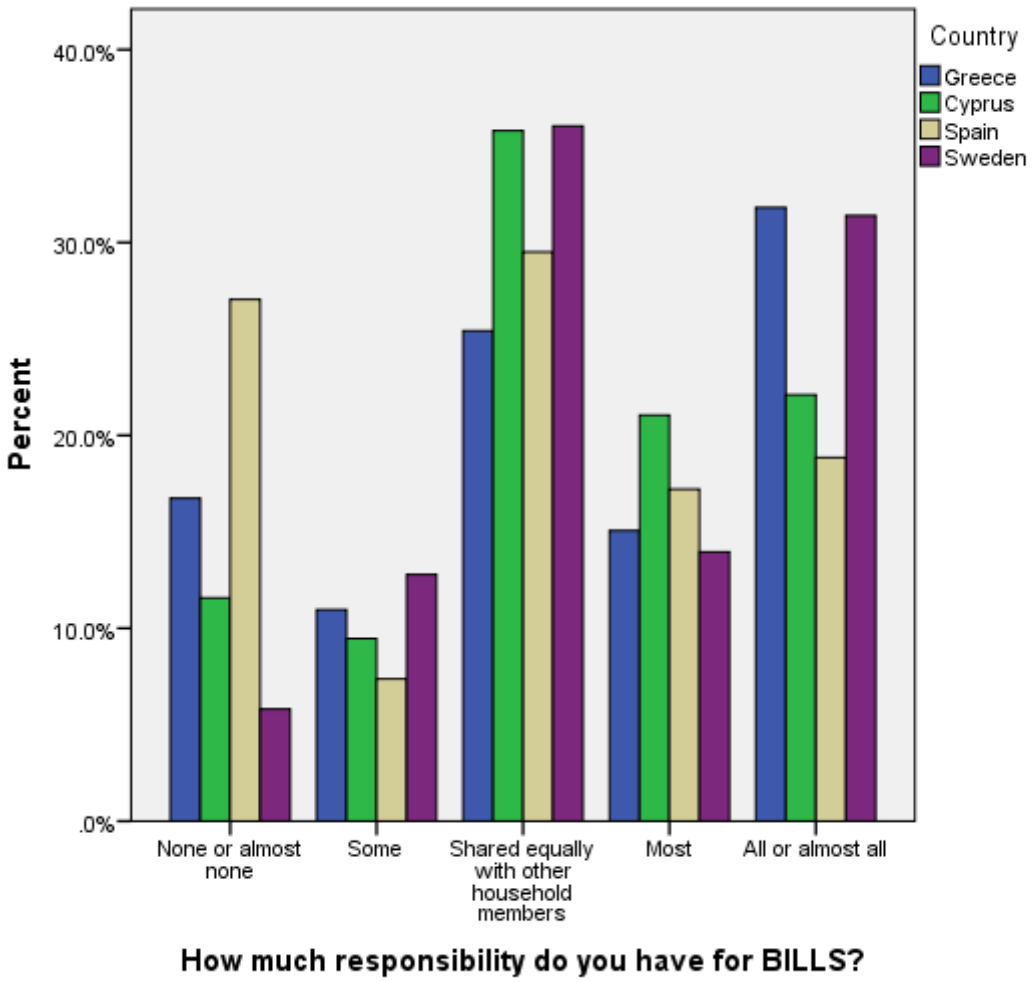


Figure 20. Responsibility for Paying bills.

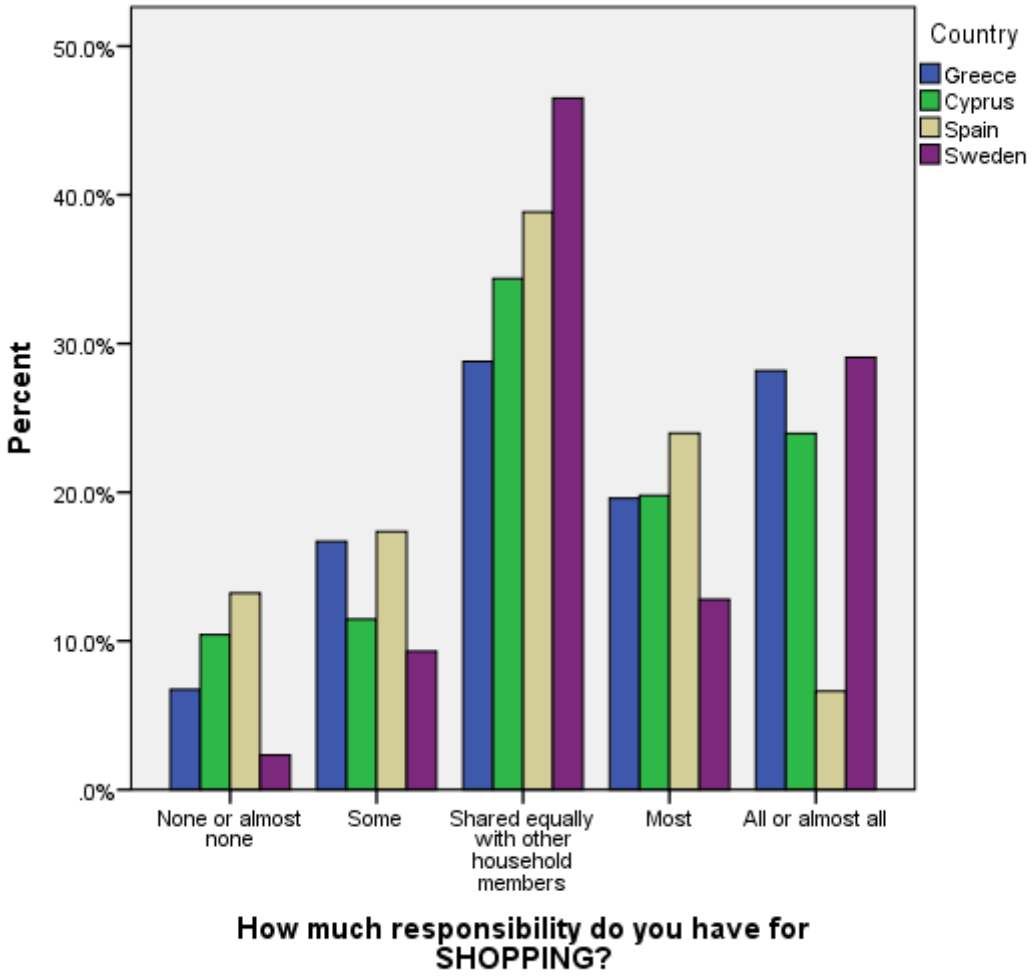


Figure 21. Responsibility for shopping.

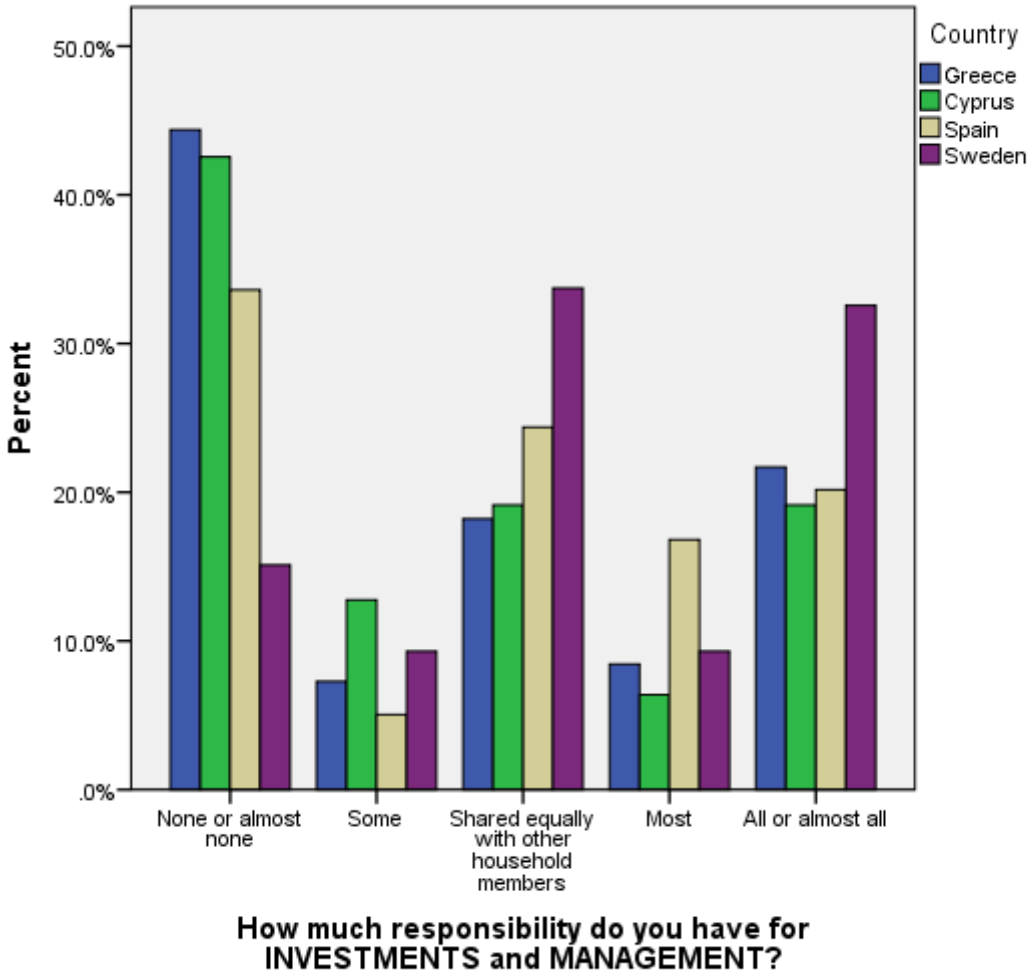


Figure 22. Responsibility for investments and management of household.

5.2. Financial Distress...

In the following figures we illustrate the level of financial distress observed in our sample across the four countries.

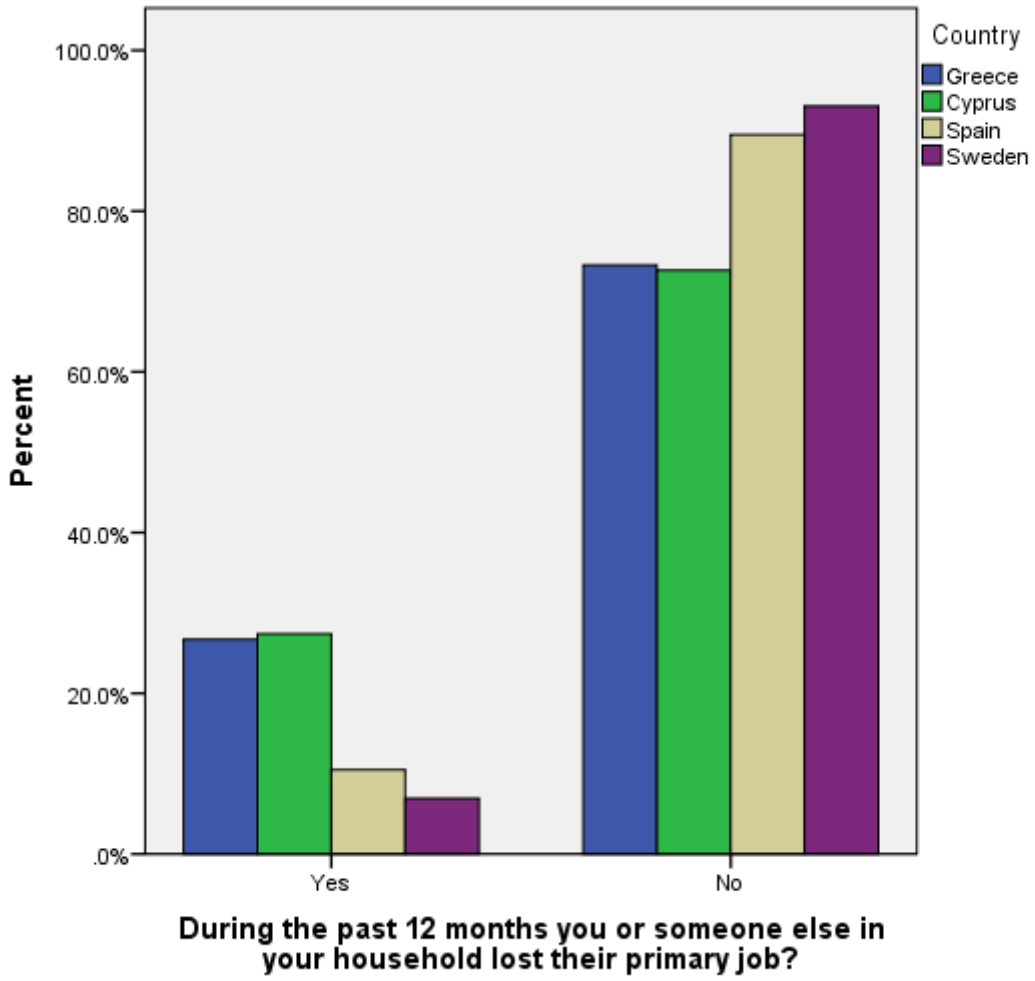


Figure 23. Jobs lost

A very significant 25% of respondents (or family members of) in Greece and Cyprus lost their jobs in the last 12 months, contrasting a much much lower percentage in Spain and even less in Sweden.

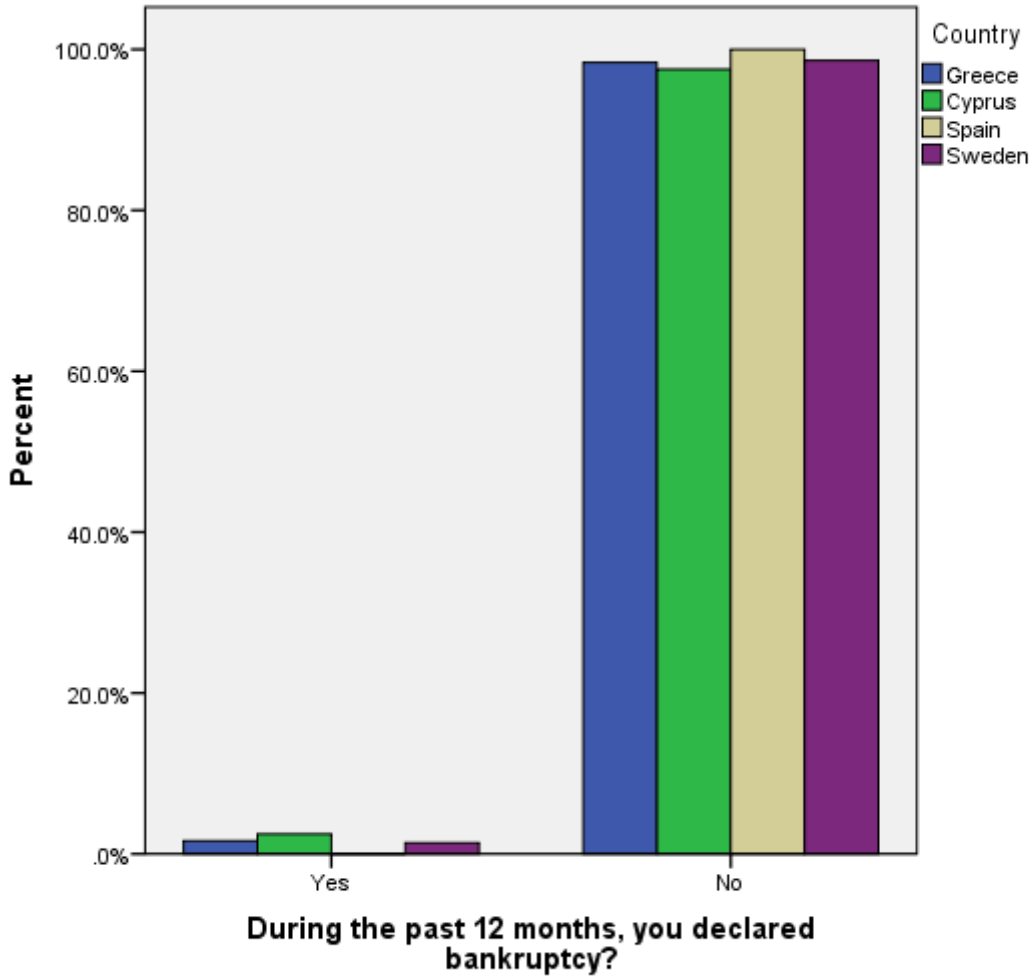


Figure 24. Bankruptcies.

Almost none has declared bankruptcy in the same period of time.

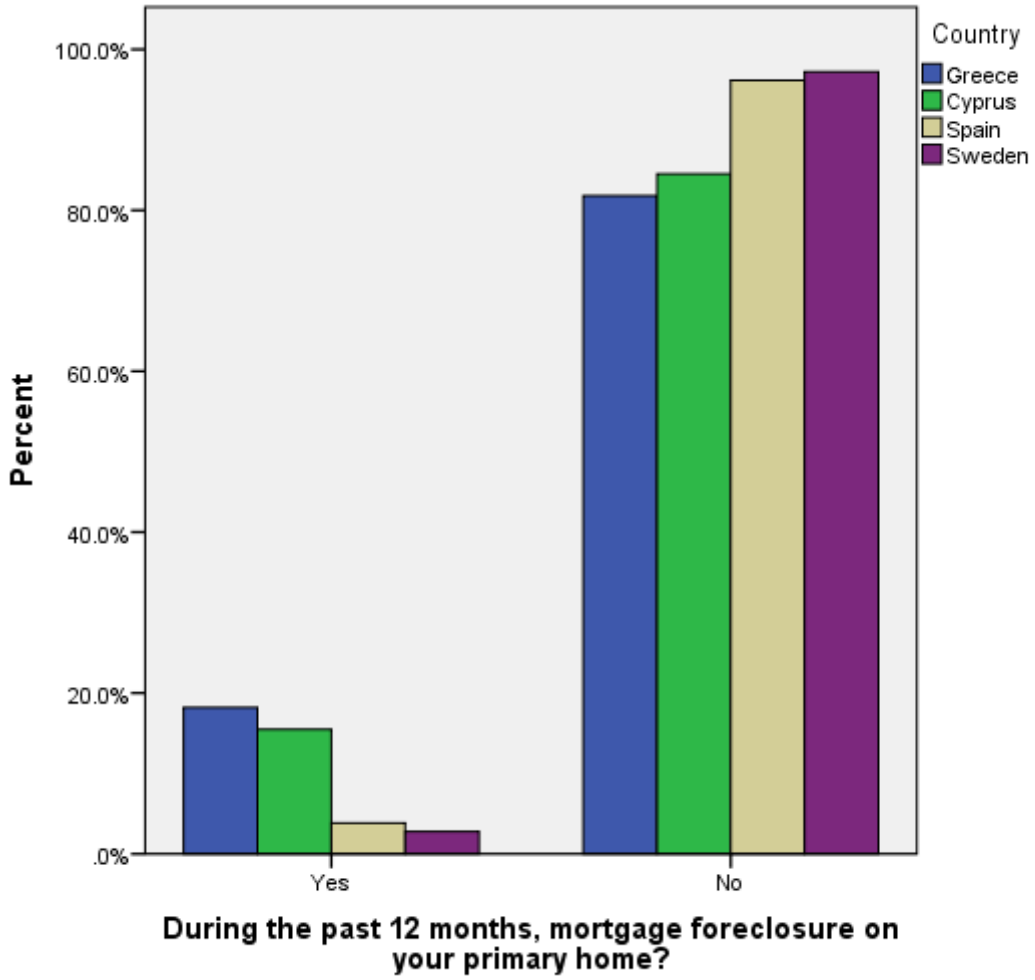


Figure 25. Mortgage difficulties.

A very significant near 20% of respondents in Greece and Cyprus did not manage to pay at least one installment for their mortgage in the last 12 months, contrasting a much lower percentage in Spain and in Sweden - less than 5%.

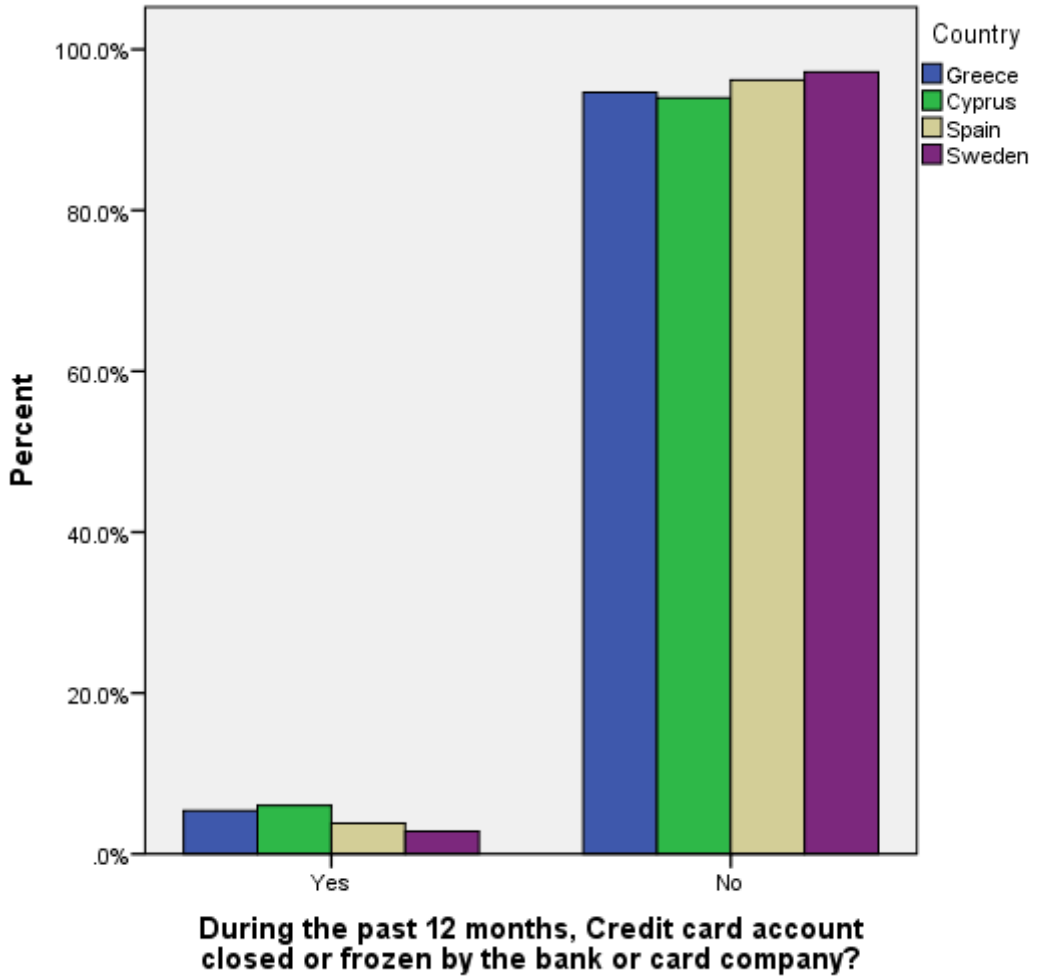


Figure 26. Credit card closed/frozen.

Low percentage and no differences observed across countries when it comes to credit cards accounts closed or frozen from the issuing banks.

Overall there were clear financial difficulties faced for the sample in Cyprus and Greece and much less in Spain and Sweden.

6. Results and Discussion

Coming back to the main research question and objective for this study, we would like to reflect a bit on the nature of the question imposed in the first place, and the range of credible answers we could be achieving: *as far as media payment consumer choice is concerned, is there an heterogeneous behaviour in Europe?*

The first reflective comment is: can we really check the changes in the use of payment media? I guess this would only be possible if we could rerun the same questionnaire every year like the approach that the researchers in Boston Fed do actively follow (Foster al. 2010, 2011, 2013); or if you start asking questions about the past in your questionnaires with all the risks that this strategy embeds.... The former is out of the scope and the timescale of this study. The later could have been done but then we would just measure perceptions of use - however perceptions on how many transactions you do per week in the distant past...; this may be possible for a big purchase - like buying a car, where you remember it, but certainly not for small transactions.

Would we be able to track the value of transactions? Probably not. Consumer tend to remember how many purchases they made, but exact values of them is becoming quite challenging, and would only be possible if collecting receipt sor we do have access to transaction records (like for example Klee 2008)

Are we sure about the results? As in any other study results are biased by our sample, and the ability of hte respondents ot answer objectively and remember accurately. Furthermore as receipts were not collected for these transactions, and a daily diary was not used (as in the case of Australia Federal Bank - Bagnall et al. 2011) this is not doable in our study. Instead a one-off questionnaire was employed, focusing on a large period of time: so we are actually observing consumers' perception of frequency of use of payment media over a period of time, which of course has its own merit.

And the merit comes from being able to highlight regional differences, as we do still measure the same thing across different regions in Europe. Are all theses countries expected to start from the same starting point? No, as Information Technology (IT) and the respective developments in the payment systems front are different from country to country. But for countries of similar technological penetration, if significant differences are observed in consumer behavior then we are getting somewhere...

The following analysis in by all means non-exhaustive; but also has many things to report and create room for future research and reflection. So in essence in the following few pages, tables and results we are looking at a regional snapshot of frequencies of use of payment media; aspiring to inform the academic audience but more importantly to inspire more research in the field - with probably more data-intensive analytics methods.

Several questions about ownership of different kind of accounts and adoption and use of different kind of payment instruments give us information about respondents' habits and general views of payment methods. To better understand how they pay for their goods and services, we ask respondents to answer how often they use the different payment instruments during specific periods.

For example, we ask them how often they use cash, cheque, debit card, credit card, prepaid card, bank account number, online banking bill pay or through other intermediary such as PayPal. We gave them the following options as an answer: every day, about 5 times in a week, about 5 times in a month, about 5 times in a year and if they do not use a specific payment instrument at all. The results are presented in the following figures:

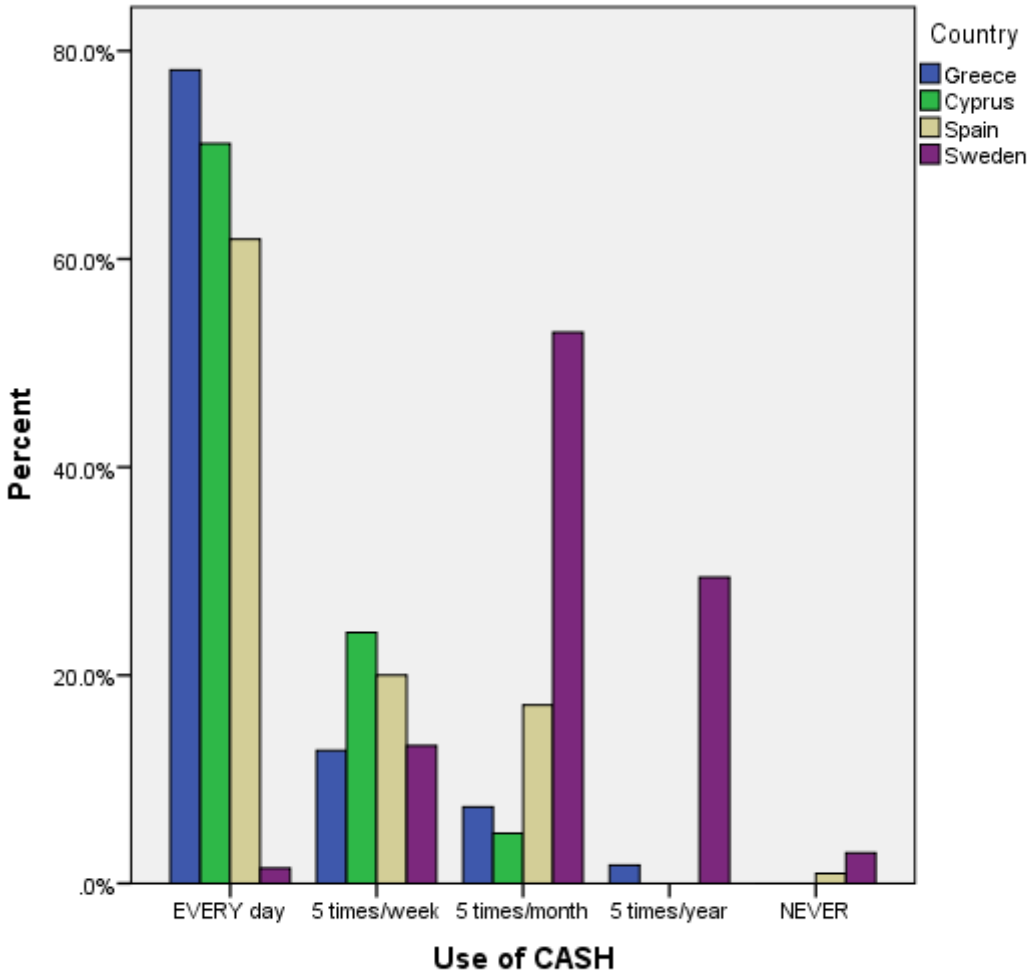


Figure 27. Use of Cash.

This table provides sufficient support for our hypotheses.

H1: *The use of Cash is evident (or even increasing) during periods of crisis*

Yes it is, as except for Sweden - more than 60% of respondents do use cash every day. The figures that are about to follow are cementing this view and reassuring us as no ther medium hit smore than 10% everyday use. The exception been Sweden and debit cards that are a clear substitute of cash (Scholnick et al. 2009)

H2: *The use of Cash will vary across different regions/countries*

Yes this is definitely the case. Sweden is very different but also between the countries in the turmoil of the crisis we still see differences in the use of cash: in fact *the more the impact of the crisis the more the use of cash*; which is an interesting phenomenon, if it is not attributed only to demographics and technology adoption .

Bagnall et al (2014) in their study along seven countries and a period of 4 -years via meta-studying and harmonizing their datasets find significant differences in the use of cash among these countries. Cash is very much still used for low-value transactions. Furthermore such use is triggered mostly by demographics as well as acceptance of the payment medium on the venue.

This latter hints that penetration of IT technology in the payment ecosystem is quite important in influencing what payment medium is used and when. This we would like to believe influence to a certain extent our results as well- however this is only a speculation as we do not have additional data to confirm that. Especially in the case of Sweden, electronic mediums of payment are dominating the market and are acceptable and available almost everywhere and as such pushing cash... to near-extinction!

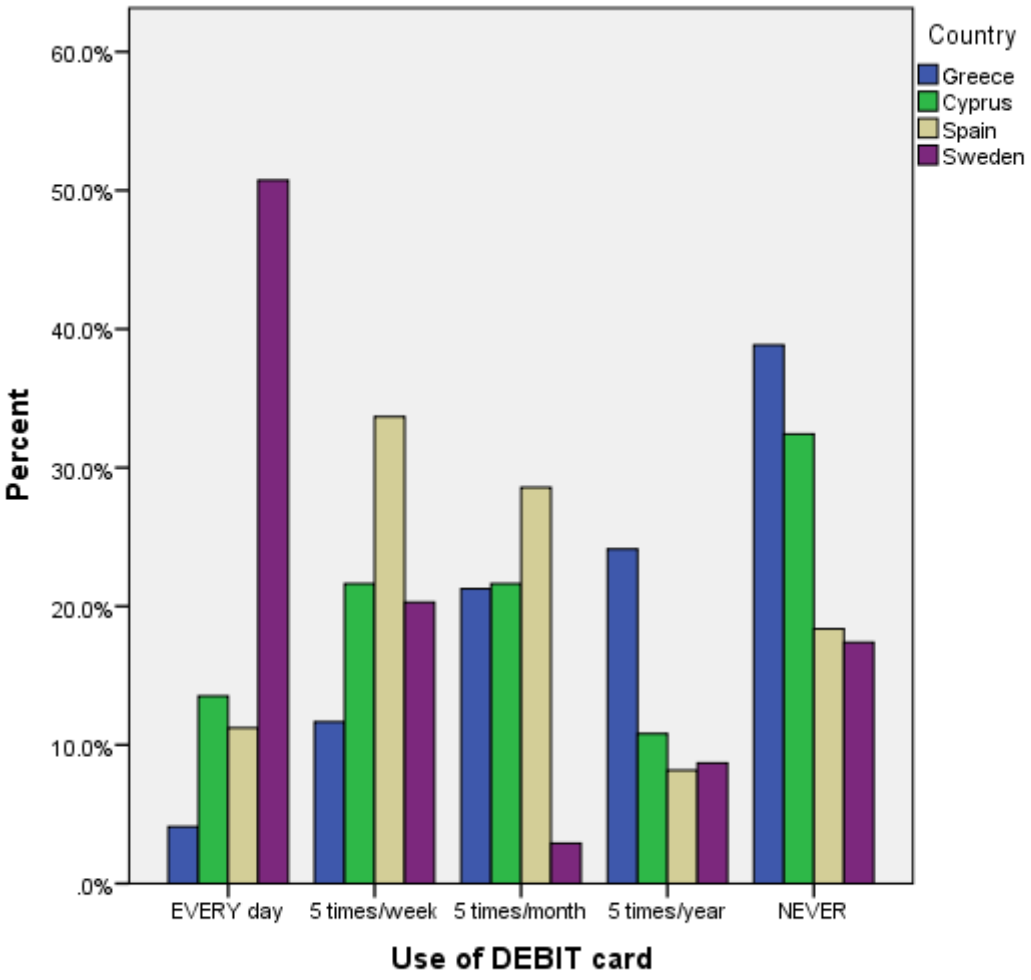


Figure 28. Use of Debit card.

We notice that Debit cards complement the use of cash and act as a substitute to a large extent - evident if we superimpose figures 27 and 28.

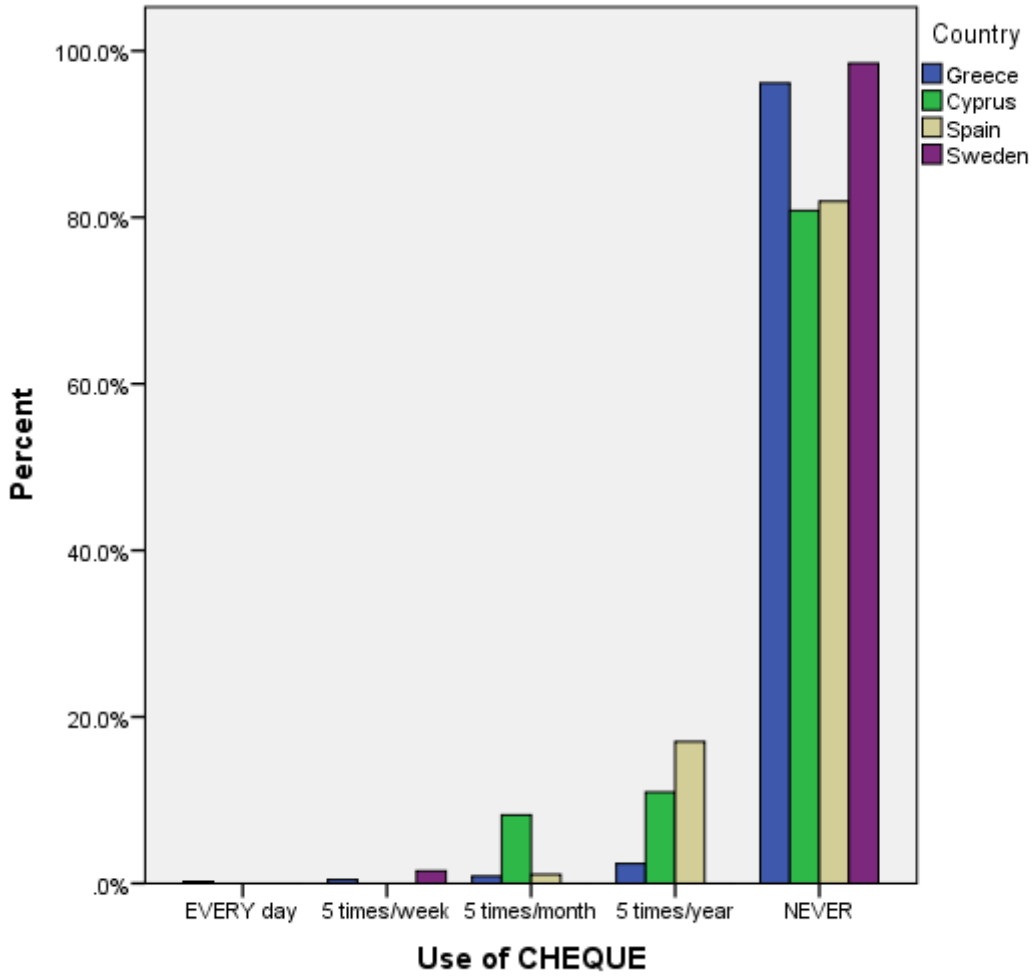


Figure 29. Use of Cheque.

We notice that cheques are phasing out in Europe with very rare use observed in our sample.

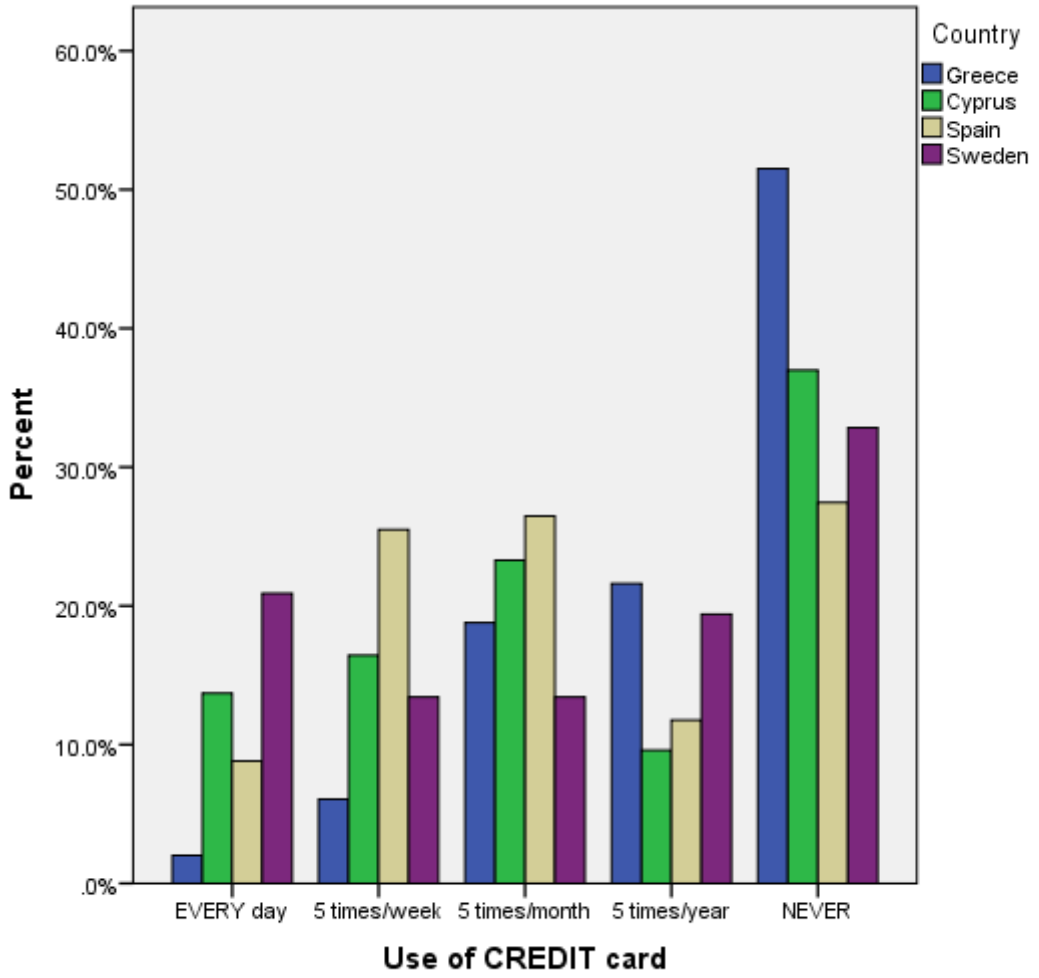


Figure 30. Use of Credit card

We notice that use of credit cards is widespread all over the year, and seems quite homogeneous across Europe; however credit cards do primarily serve a different need: access to credit!

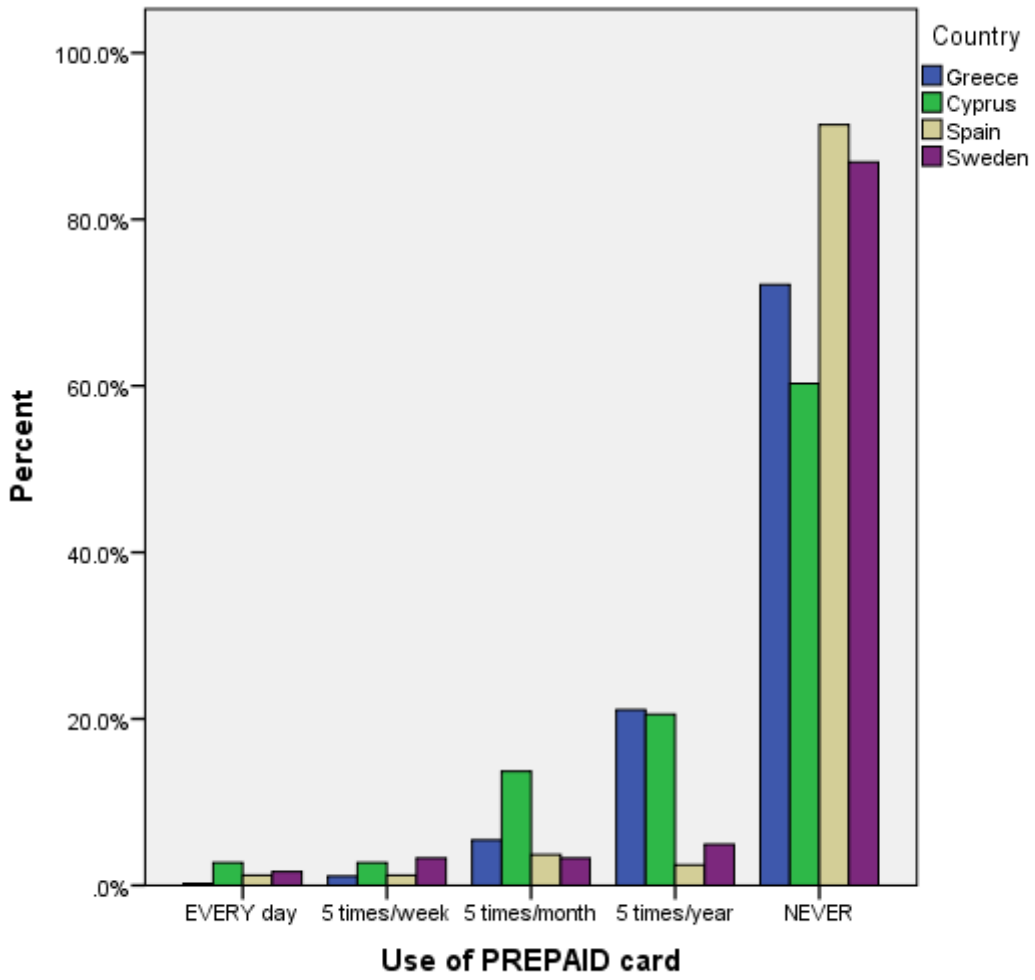


Figure 31. Use of prepaid cards.

We notice that prepaid cards are not popular among consumers in Europe with very rare use observed in our sample.

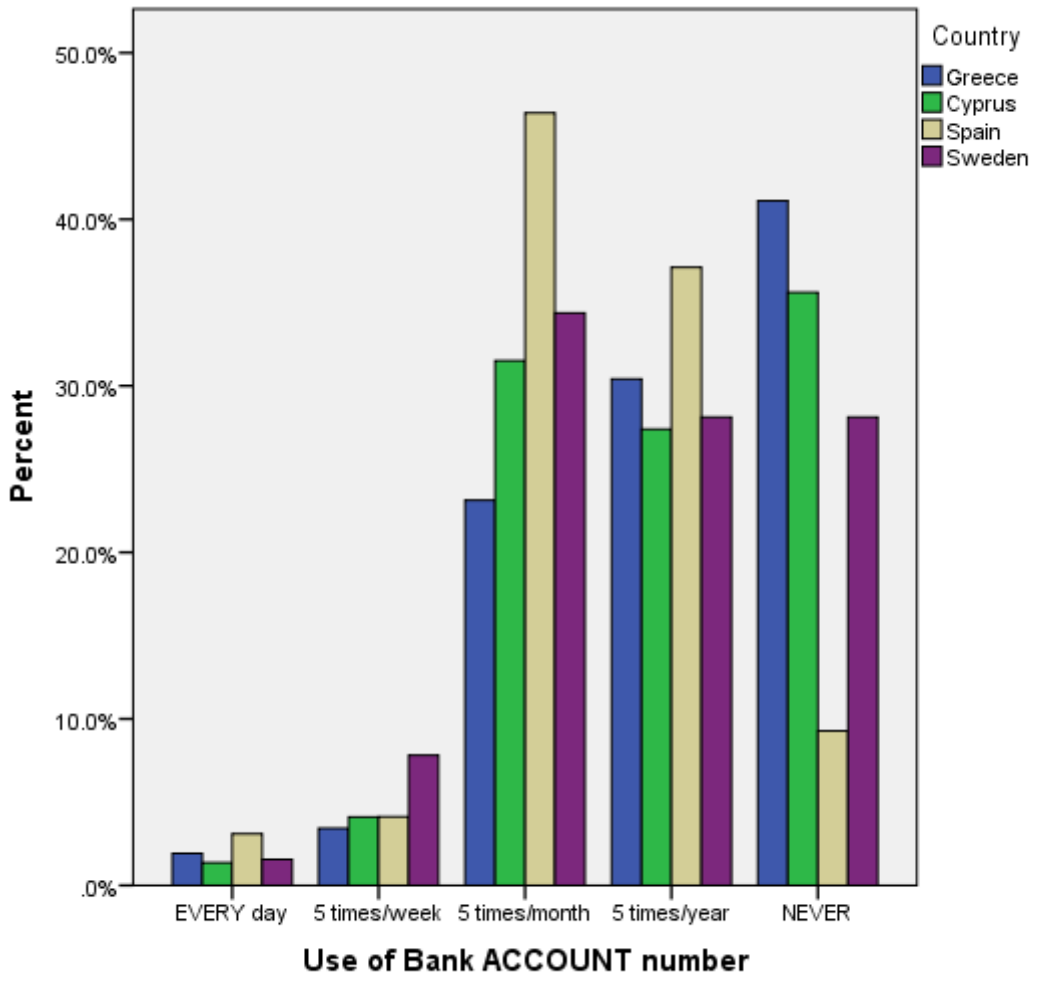


Figure 32. Use of account number.

We notice that use of bank account numbers are not for daily or weekly use but consistently across Europe are used few times per months and as observed in our sample.

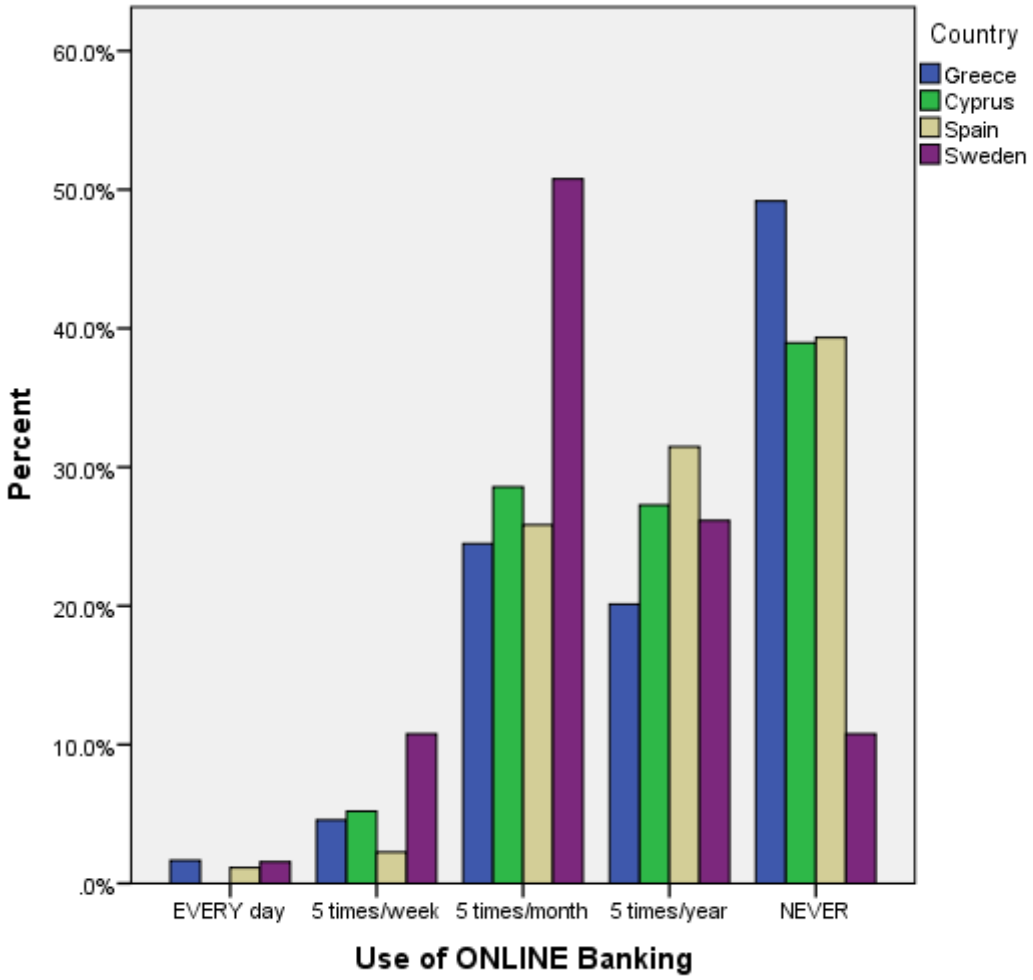


Figure 33. Use of online banking.

And similar behavior towards online banking with use in Sweden being much more popular.

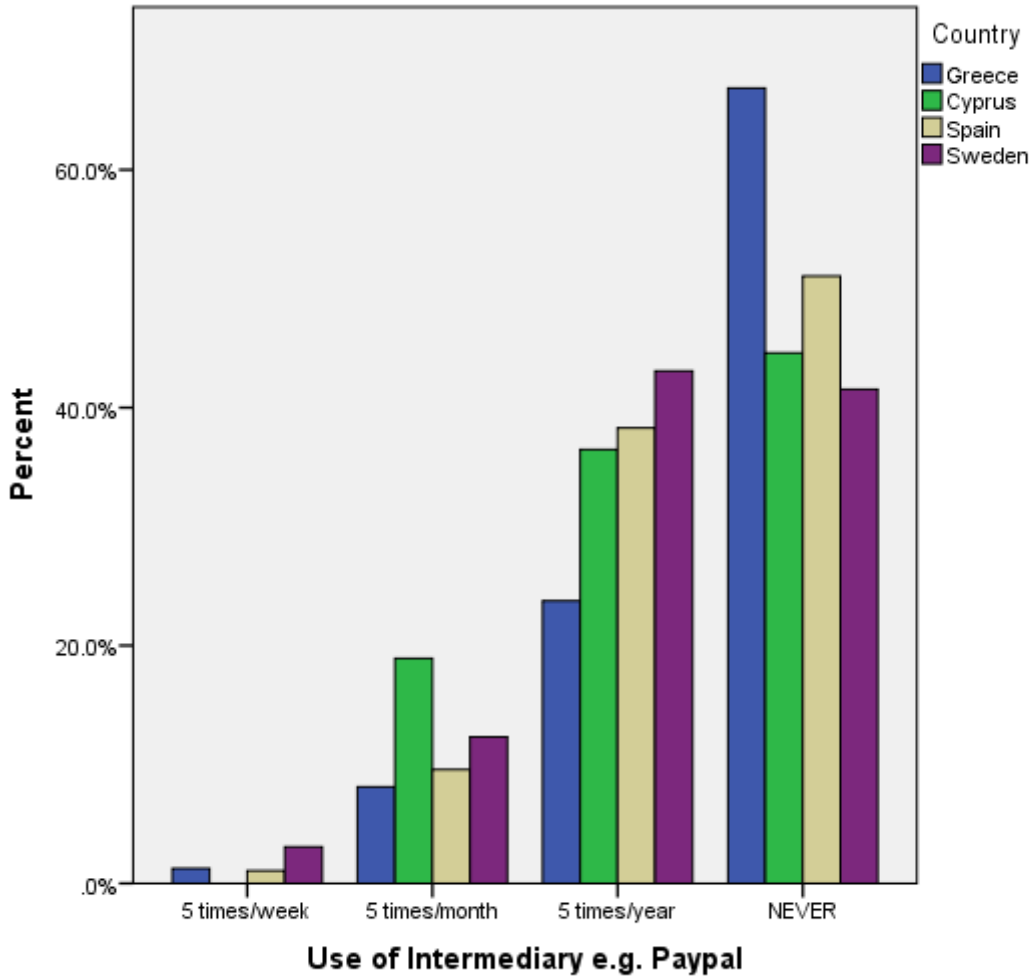


Figure 34. Use of Paypal.

We notice that use of Paypal or other intermediaries is still at its infancy across Europe, are used few times per month as observed in our sample. This being consistent across all four countries under investigation

6.1. Why are they using these media in the first place? Media Adoption Criteria ...

In the following figures we try to throw some light in what really drives people using a specific payment medium; that could somehow explain why people stick to cash, in the periods of crises and for small transactions (Bagnall et al. 2014).

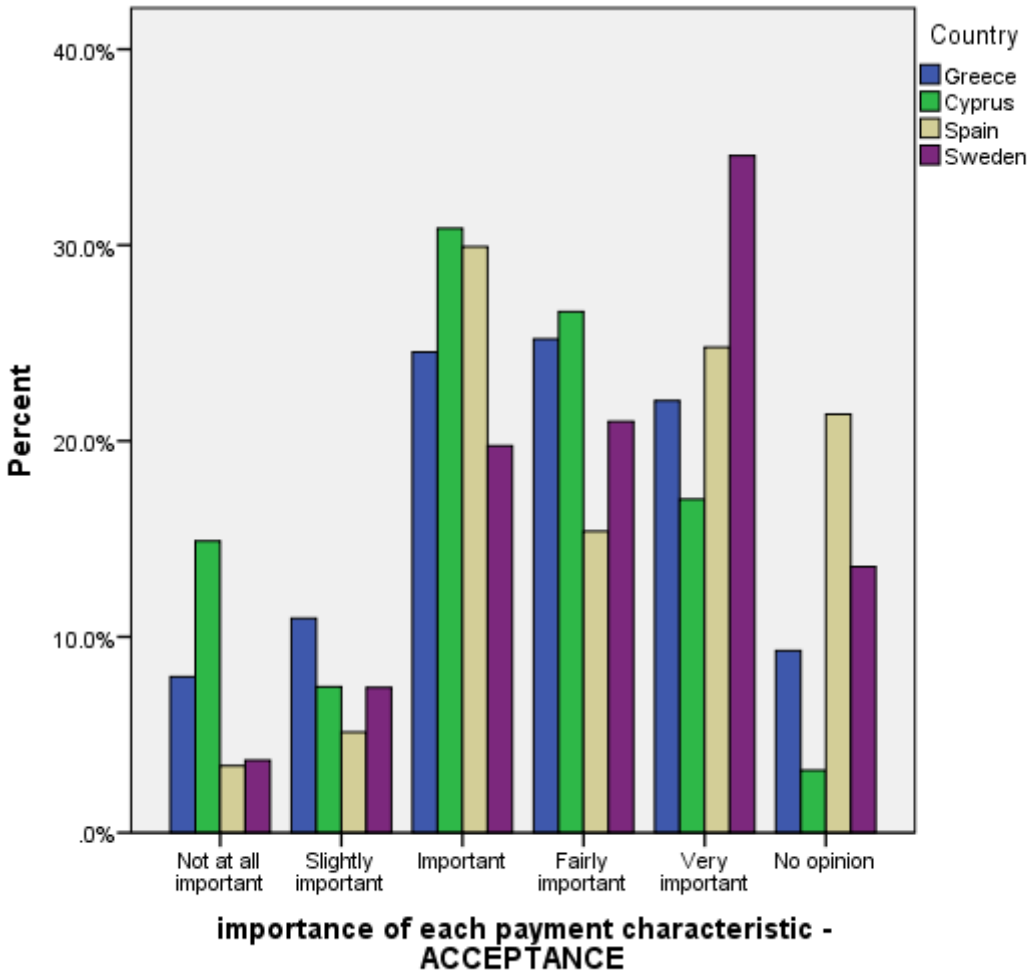


Figure 35. Importance of Acceptance.

We note that views on acceptance are spread.

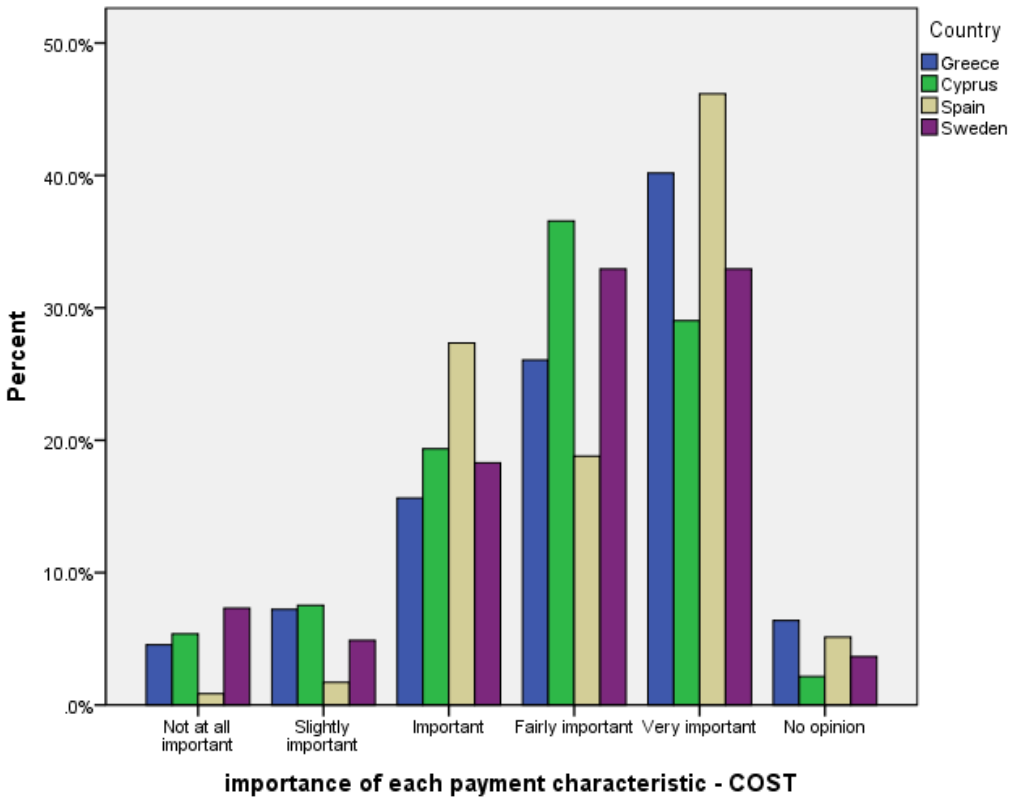


Figure 36. Importance of Cost.

We also note that views on importance of cost are spread, but it seems ore important than acceptance.

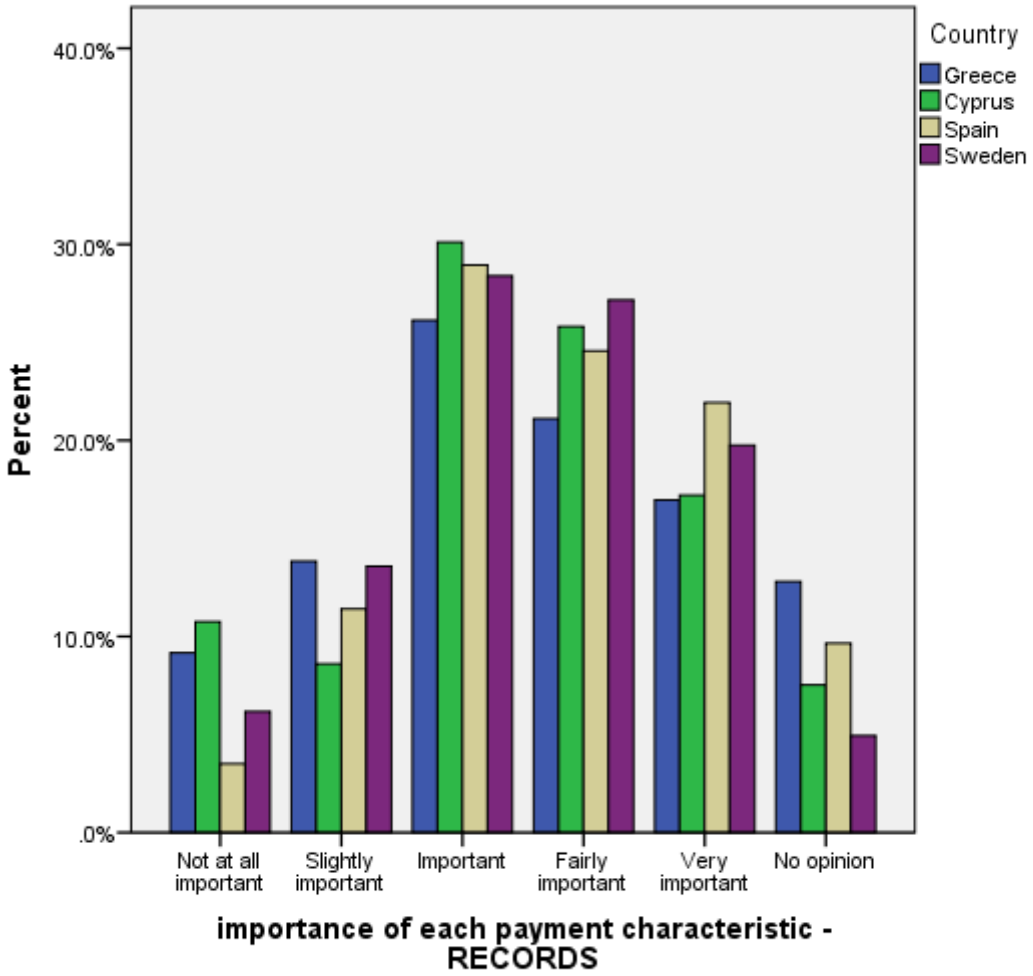


Figure 37. Importance of Records.

We note that seems been able to keep records is not a decider.

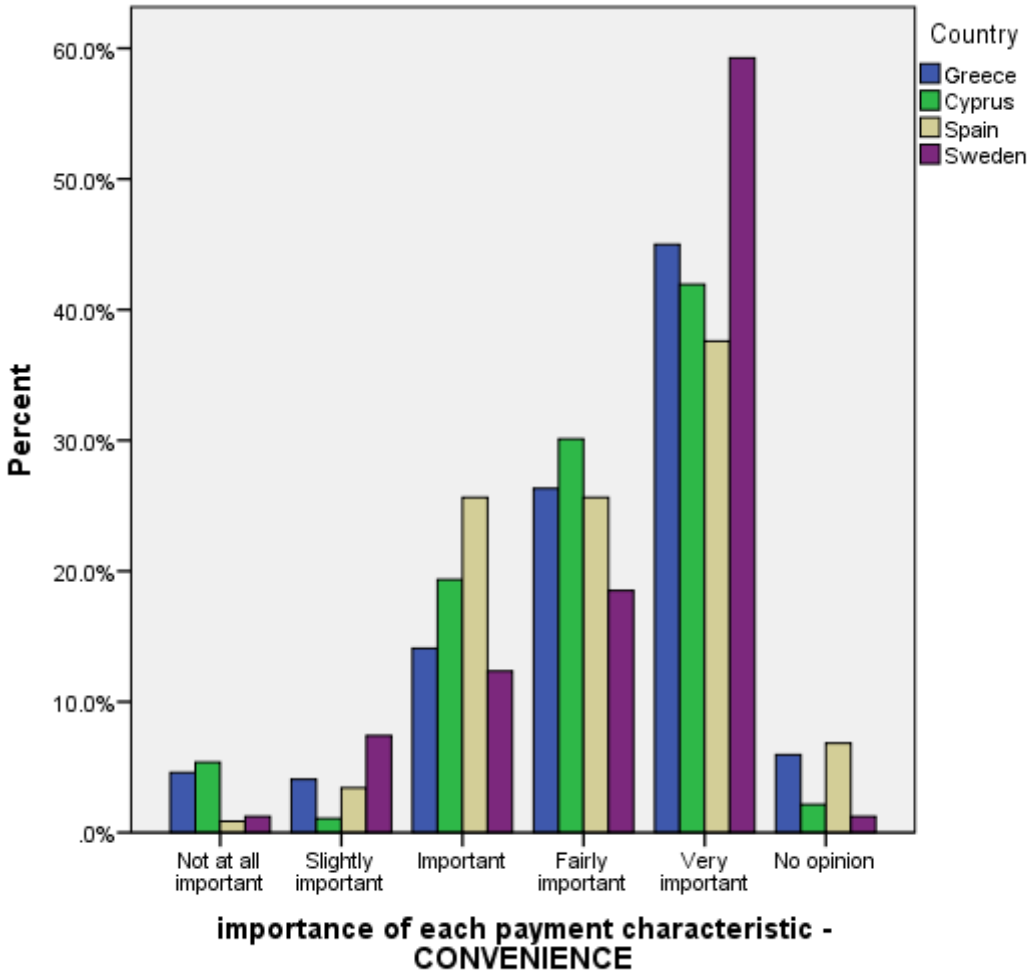


Figure 38. Importance of Convenience.

We do note that convenience is a very important aspect, and that is definitely in favour of cash in use for everyday transactions as well small ones - crisis or no crisis.

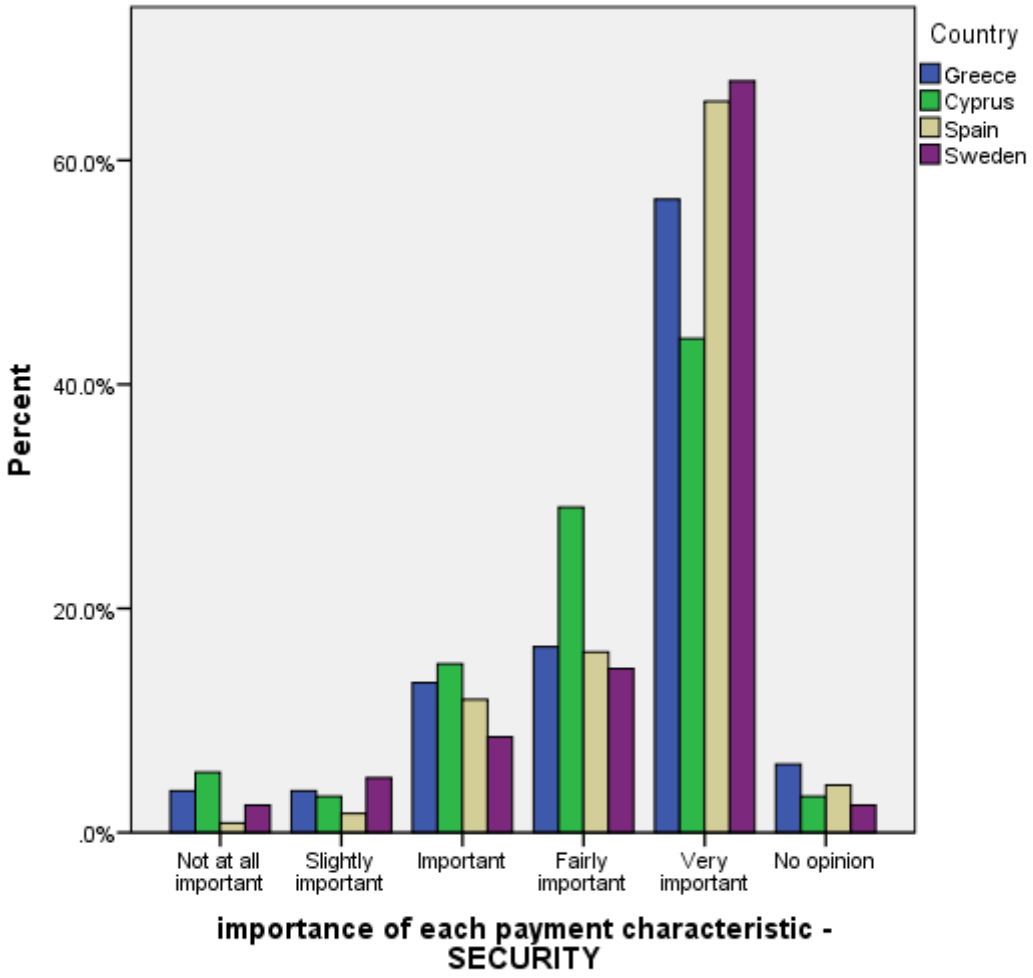


Figure 39. Importance of Security.

Finally we do note also that security is a very important aspect.

7. Conclusions and further research

Simple questions...simple answers! In the periods of crises is still cash an important medium of payment? Definitely it is. definitely in terms of frequency and everyday use - we could not measure in terms of value though. Is it increasing, decreasing or remaining stable? We would need either a longitudinal study or relying to long term consumer's memory to answer this; so not in this time-restricted study. The results remains though: cash is still a very important medium of payment during crises.

What about cross-country differences? Definitely these exist and it seems the more the impact of the crisis the more the use of cash. But isn't technology adaption and penetration influencing this in the long term? Yes we do have every reason to believe so - we have not measured this in this study - however we still see differences between countries with similar technological advances in the payments ecosystem like Greece, Cyprus and Spain. Ok, differences do exist and can all these be attributed to demographics maybe as in Bagnall et al. (in 2014). We can empirically attest here for the argument that the crisis plays its role. However we measured the criteria that lead to adoption of payment media and security , convenient and cost are very important too irrespectively of crises or not....

We reiterate: we literally observed consumers' perception of frequency of use of payment media over a period of time. And we did found:

- use of cash is clearly evident in our empirical findings: frequent and consistent!
- regional differences are also evident, with cash is more used in countries more impacted from the crisis

As in any other survey-based study, this research is prone to criticism re the achieved statistical significance or the generalization of the findings in general given that all is based on a sample; moreover this specific sample is a convenience one. This however should not act as a barrier to such research as it comes with many valuable findings per se as well as usually opens the way to more research both quantitative and positivistic as well as qualitative (see Litsiou and Nikolopoulos, 2019a for example). Having that said, and acknowledging the limitations of our study, we believe we found enough evidence support our two hypotheses.

For further research there is obviously need for more studies on cross-country differences in the use of payment media where researchers would control for demographic differences and technological innovation in the payments ecosystems; or even following the more expensive American model of Boston Fed (Foster et al. 2011) where a professional market research firm like RAND is involved in the sampling process.

But more importantly there was evident the need for studies from a more socio-economic perspective chasing the evolution of deeper social phenomena: social collateral, impact of social networks and the development of a zero-marginal-cost society (see Litsiou and Nikolopoulos, 2019b for example).

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Appendix A

Survey Instruments from the literature

The 2008, 2009 and 2010 SCPC_Questionnaire may be retrieved from the following links:

http://www.bostonfed.org/economic/ppdp/2009/ppdp0910-survey.pdf

http://www.bostonfed.org/economic/cprc/SCPC/2009%20Data/2009_SCPC_Questionnaire.pdf

http://www.bostonfed.org/economic/cprc/SCPC/2010-Data/scpc2010survey-instrument.pdf

Data in Stata, SAS and XLS formats for the respective years may be found at

http://www.bostonfed.org/economic/cprc/SCPC/index.htm

and data description from

http://www.bostonfed.org/economic/cprc/SCPC/2010-Data/2010_SCPC_Data_User_Manual.pdf

The 2007 RB Australia used Diary and Questionnaire may be retrieved from the appendix of Emery et al. (2008)

Appendix B.

Our research Survey Instrument - The Questionnaire